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January 6, 2016

Via Email

Cynthia J. Morris
Chloe H. Kolman
Environment & Natural
Resources Division
Env. Defense Section
P.O. Box 7611
Washington, DC 20044

Nina Rivera
Office of Regional Counsel
U.S. Environmental Protection
Agency
Region 3
1650 Arch Street
Philadelphia, PA 19103

Daniel Mulvihill
Senior Attorney
Delaware Riverkeeper Network
925 Canal Street
7th Floor, Suite 3701
Bristol PA 19007

Re: Status Report No. 4

Dear Ms. Morris, Ms. Kolman, Ms. Rivera, and Mr. Mulvihill:

Pursuant to paragraph B.3 of the Interim Settlement Agreement between the West Goshen Sewer Authority ("the Authority"), the United States Environmental Protection Agency, and the Delaware Riverkeeper Network, the Authority provides the representatives of the parties with the attached semi-annual status report regarding the Authority's efforts to make interim reductions in its discharge of phosphorus to Goose Creek.

The work described in this status report is separate and in addition to the Authority's work in support of EPA's reassessment of whether Goose Creek is impaired due to nutrients, as described in the report the Authority submitted on October 30, 2015.

Please let me know if you have any questions about this work or the Authority's work in connection with the reassessment.

Yours truly,

Steven T. Miano

cc: Ross A. Unruh, Esq.

**WEST GOSHEN SEWER AUTHORITY
CHESTER COUNTY, PENNSYLVANIA**

**Status Report No. 4
January 6, 2016**

Work Completed the Past 6 Months

1. Engineer and staff continued to review the plant operations and determined that the optimum location for a second application feed point for addition of phosphorus-removing chemicals was prior to the polishing clarifiers. Following up on a bench test that was performed by the Authority's chemical supplier on March 23, 2015, the chemical, a Delpak/polymer mix, was delivered on June 27, 2015. The plant staff began test applications with the new chemical starting on July 20, 2015.

The chemical was pumped into an existing chemical feed line going into a manhole downstream of the intermediate/final clarifiers. This provided mixing of the chemical solution from the upper portion of the plant to the polishing clarifiers at the downstream end of the plant, adjacent to the UV system.

The attached site map shows the location of the second chemical feed point used in this experiment. A copy of the MSDS for this chemical is also attached.

The test period lasted a duration of four days from July 20th to the 23rd. A summary of the effluent phosphorus results are attached. The data displays the phosphorus values from a week before to a week after and every day during the test period. It can be seen that within twenty-four hours, the effluent phosphorus levels dropped from approximately 1.5 mg/l to less than half, which is in the range of the 0.8 mg/l limit that the Authority was hoping to achieve without significant upgrades to plant tanks, buildings, equipment and piping, electrical wiring, and other related work.

The addition of this blended chemical was stopped because the addition of the chemical resulted in the pH of the wastewater dropping below 6.0, which is the minimum pH allowed under the plant's NPDES discharge permit. The STP staff did not attempt to raise the pH at that time and discontinued the testing, as they felt they had demonstrated the ability to reach the 0.8 mg/l level of phosphorus in the effluent. If this option is selected in the future, staff will need to install analyzers and a pH-adjusting chemical feed system. Staff will also need to evaluate where to install this pH-adjusting system, which could possibly be located at the polishing clarifier, at the point of the second application, or elsewhere in the system.

2. Authority personnel met or spoke with additional representatives of manufacturers of phosphorus removal and dewatering technology to evaluate the potential for using such technology in the plant. The staff received proposals on their preferred sludge dewatering process, PW Tech, which is an enclosed volute press. Two options were evaluated -- one (1) large press and two (2) smaller presses. See attached proposals including scope for each option. The Authority and STP staff are considering the replacement/upgrade of their

existing Ashbrook belt filter presses since the phosphorus levels in the filtrate have been identified as one of the primary sources of phosphorus in the treatment plant. Staff are continuing to evaluate whether the amount of phosphorus in the filtrate can be reduced by either using a different type of dewatering process or pre-treating the filtrate and returning it to the head of the plant.

3. In October, West Goshen Township hired HRG, Inc., consulting engineers, to perform an independent feasibility study of the treatment plant to determine additional potential phosphorus removal alternatives as well as other treatment plant upgrades. The report will be finalized in the March - April, 2016 time frame.
4. The Authority staff or engineer have visited the following wastewater treatment plants in order to see how other plants are implementing phosphorus removal technologies:

a.	Lewistown Borough Mifflin County, PA Design Flow - 8.0 mgd	5-Stage Bardolph BNR process
b.	New Cumberland Borough Cumberland County, PA Design Flow - 1.25 mgd	Oxidation Ditch with Chemical Addition

Work Planned for the Next Six Months

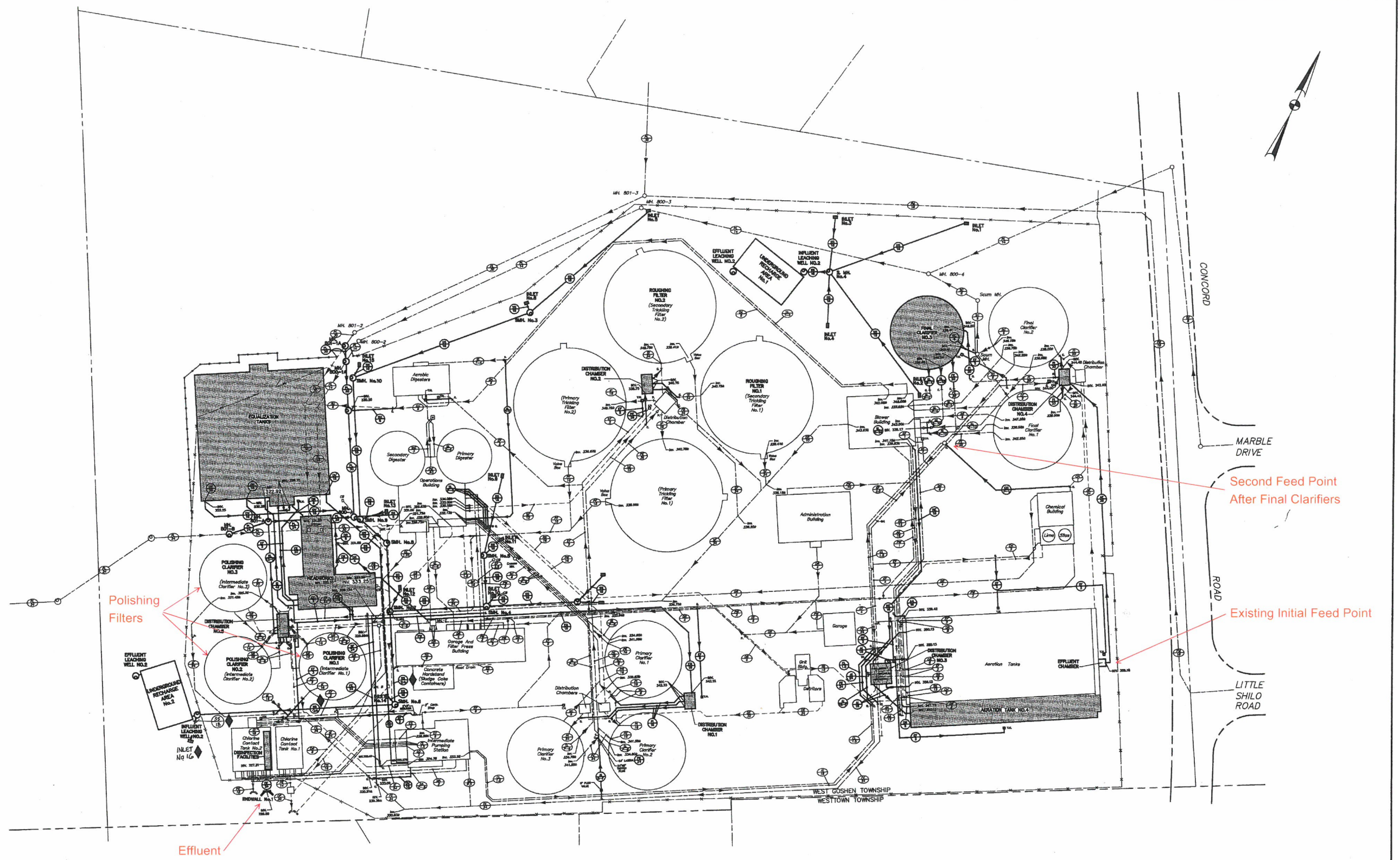
1. The Engineer and Authority personnel will continue to locate and visit other treatment facilities with innovative phosphorus removal systems to evaluate such systems' potential applicability.
2. Authority personnel will continue to test, monitor, and record phosphorus levels at various locations in the plant to determine potential points in the treatment process where application of chemicals might be effective.
3. Authority personnel intend to continue to conduct additional tests to evaluate the impact of, and to investigate potential unexpected consequences of, varying chemical feed dosage at various points in the treatment process. The staff plans to perform additional tests on the hydraulic, effluent, and solids handling systems, trying to optimize the chemical feed dosages and still achieve a 0.8 ppm level for phosphorus in the plant discharge.
4. Authority staff will continue evaluating various types of dewatering systems and phosphorus removal technology. It is anticipated that bids for construction may be prepared in the second quarter of 2016 for a new dewatering system to replace the existing belt filter presses.

West Goshen Township
Wastewater Treatment Plant
Phosphorus Removal
July, 2015

Plant Effluent
Phos as P. mg/l

		07/12/15		
		07/13/15	1.36	
		07/14/15	1.47	
		07/15/15		
		07/16/15		
		07/17/15	1.52	
		07/18/15		
		07/19/15		
Added a New Chemical (Pac/polymer mix) to a second location (Polishers)	{	07/20/15	1.45	
		07/21/15	0.82	
		07/22/15	0.71	Effluent pH exceedence
		07/23/15	0.74	Effluent pH exceedence - terminated experiment due to pH issues
		07/24/15		
		07/25/15		
		07/26/15		
		07/27/15	1.43	
		07/28/15	1.48	
		07/29/15		

Attachments



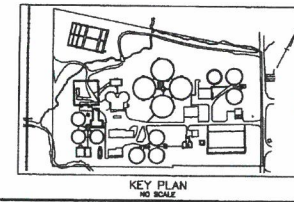
Polishing
Filters

Effluent

Second Feed Point
After Final Clarifiers

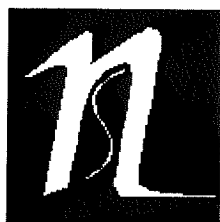
Existing Initial Feed Point

LEGEND
 Existing Structures
 NEW STRUCTURES



MARK	REVISIONS	DATE	WEST GOSHEN SEWER AUTHORITY WEST GOSHEN TOWNSHIP, CHESTER COUNTY, PENNSYLVANIA SEWAGE TREATMENT PLANT UPGRADE AND EXPANSION		
			PROCESS INTERUNIT PIPING PLAN		
			GLACE ASSOCIATES, INC. CONSULTING ENGINEERS CAMP HILL, PENNSYLVANIA		
DRAWN BY: CEK		APPROVED: <i>[Signature]</i>		SCALE: 1"=40'	SHEET NO. 6
DESIGNED BY: LE		CHECKED BY: MEB		FILE CODE: 97041.C	OF 75
COMPUTER DRAWING FILE NAME: 97041C40.DWG (6/14/98)		DATE: MARCH 1998			

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SAFETY DATA SHEET

Page 1 of 6

Rev. Date: 3/24/15

1. INFORMATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

Product Name: **EXP 240315**

GHS Product Identifier: Corrosive Liquid

Supplier: **Neo-Solutions, Inc.**
P.O. Box 26
Beaver, PA 15009
724.728.1847 Fax: 724.728.3440

NFPA Rating: Health: 2 Flammability: 0 Reactivity: 0
HMIS Rating: Health: 2 Flammability: 0 Reactivity: 0

Emergency Telephone Number
724.728.1847

EMERGENCY OVERVIEW

CORROSIVE LIQUID! Clear to slightly hazy, colorless to yellow liquid with no appreciable odor.
Harmful if swallowed or inhaled. Can be corrosive to eye, skin and respiratory irritation.

2. HAZARDS IDENTIFICATION Hazard Information

CAUTION. May cause irritation / burns to all tissues on prolonged contact.

Eye contact: Bases on pH, this product is expected to cause severe eye irritation, possibly resulting in burns and eye damage. Prolonged exposure to Aluminum salts may cause conjunctivitis.

Skin contact: Prolonged and / or repeated contact will cause severe skin irritation and burns.

Inhalation: Inhalation of mist or spray may irritate respiratory tract and may cause burns and difficulty breathing.

Ingestion: Harmful if swallowed. May cause burns to the mouth, throat and stomach. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Aggravated medical conditions: Existing skin, eye and lung conditions.

Acute overexposure: Possible eye, skin and respiratory tract irritation or burns.

Chronic overexposure: May aggravate existing skin, eye, and lung conditions. Persons with kidney disorders have an increased risk from exposure based on general information found on aluminum salts.



Personal protection pictograms:

3. COMPOSITION / INFORMATION ON INGREDIENTS

Ingredient	%WT / WT	OSHA – PEL's	ACGIH – TLV's
Polyaluminum chloride	40-50	Not established	Not established
Cationic polymer	0-10	Not established	Not established

4. FIRST AID MEASURES

Eye contact:	Remove contact lenses, if worn. Immediately flush with plenty of water for at least 15 minutes, holding eyelids apart to ensure flushing of the entire surface. Washing within one minute is essential to achieve maximum effectiveness. Seek medical advice immediately.
Skin contact:	<u>Immediately</u> flush skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice / attention.
Inhalation:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.
Ingestion:	Seek medical attention <u>immediately</u> . Give large amounts of water to drink. If vomiting should occur spontaneously, keep airway clear. NEVER give anything by mouth to an unconscious person.
Acute exposure:	Possible eye, skin and respiratory tract irritation or burns.
Chronic exposure:	May aggravate existing skin, eye, and lung conditions. Persons with kidney disorders have an increased risk from exposure based on general information found on aluminum salts.
Aggravated medical conditions:	Existing skin, eye and lung conditions.
Notes to physician:	Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Flash Point:	not applicable
Flammable Limits in air - Lower (%):	not applicable
Upper (%):	not applicable
Suitable extinguishing Media:	Water Spray, Carbon Dioxide, Foam, Dry Chemical.
Autoignition Temperature:	not applicable
Fire-fighting measures:	Product is a water solution and nonflammable. In a fire, this product may build up pressure and rupture a sealed container; cool exposed containers with water spray. Use self-contained breathing apparatus in confined areas; avoid breathing mist or spray.
Special hazards during fire-fighting:	May produce hazardous fumes or hazardous decomposition products.
Special protective equipment for firefighters:	Full protective clothing and approved self-contained breathing apparatus required for fire-fighting personnel.

6. ACCIDENTAL RELEASE MEASURES

Procedures for cleaning/absorption:	Stop leaks. Clean up spill <u>immediately</u> . Build dikes as necessary to contain flow of large spills. For small spills, use soda ash to neutralize, an inert material to absorb, or wash product to a chemical sewer. Place contaminated materials into containers and store in a safe place to await proper disposal. Wear adequate personal protective clothing and equipment. Caution: use of soda ash may generate carbon dioxide gas. Provide adequate ventilation to spill area.
Personal precautions:	Wear adequate personal protective equipment. Approved breathing apparatus may be necessary.
Environmental precautions:	DO NOT allow liquid to enter stream or waterways.

7. HANDLING AND STORAGE

Precautionary Statements

CAUTION

CORROSIVE LIQUID!

CAUSES SEVERE IRRITATION, POSSIBLE BURNS

Wear chemical splash goggles, gloves, and protective clothing when handling

Use with adequate ventilation and employ respiratory protection where mist or spray may be generated

May be harmful if swallowed or inhaled

FOR INDUSTRIAL USE ONLY

Advice on safe handling

Avoid contact with eyes, skin, and clothing

Avoid breathing mist or vapors

Wash thoroughly after handling

Keep container closed when not in use

Keep away from heat and open flame.

Technical measures and storage conditions

Store in a cool, dry place away from direct heat

Keep container tightly closed when not in use

DO NOT store in unlined metal containers

Product may slowly corrode iron, brass, copper, aluminum mild steel and stainless steel.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures:	Local exhaust ventilation as necessary to maintain exposures to within applicable limits. Please refer to the ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.
Respiratory protection:	When exposures exceed the PEL or TLV, use NIOSH/MSHA approved respirator in accordance with OSHA Respiratory Protection Requirements under 29 CFR 1910.134.
Hand protection:	Appropriate chemical resistant gloves should be worn.
Skin and body protection:	Standard work clothing and work shoes.
Eye / face protection:	Chemical goggles and/or face shield if splashing hazard exists.
Other personal protection data:	Eyewash fountains and safety shower <u>must</u> be easily accessible.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	liquid	Color:	colorless to yellow
Appearance:	clear to slightly hazy	Odor:	odorless
pH:	1.0 – 2.0 (as is)	Specific gravity (water=1):	1.330 - 1.360
Density:	11.09– 11.34	Bulk density:	no information available
Flash point:	not applicable	Autoignition temperature:	not applicable
Boiling point / boiling range:	no information available	Melting / freezing point:	not applicable
Vapor pressure:	no information available	Vapor density:	no information available
Percent volatile, wt. %:	45 - 65% (water)	Evaporation rate:	no information available
Solubility:	soluble below pH 4	Solubility in other solvents:	no information available
Volatile organic compounds (VOCs) content:	no information available	Dynamic viscosity:	< 50 cps
Kinematic viscosity:	no information available	Molecular weight:	no information available

10. STABILITY AND REACTIVITY

Chemical stability:	Stable under normal conditions of handling, use and transportation.
Conditions to avoid:	none
Material to avoid:	alkalis
Hazardous decomposition products:	Thermal decomposition may release toxic and/or hazardous gases such as Cl ₂ , and HCl.
Hazardous polymerization:	Not anticipated under normal or recommended handling and storage conditions.
Additional guidelines:	none

11. TOXICOLOGICAL INFORMATION

Principal Routes of Exposure:	Skin, eyes and respiratory tract.
Eye contact:	Based on pH, this product is expected to cause severe eye irritation, possibly resulting in burns and eye damage.
Skin contact:	Prolonged and / or repeated contact will cause severe skin irritation and burns.
Inhalation:	Inhalation of mist or spray may irritate respiratory tract and may cause burns and difficulty breathing.
Ingestion:	Harmful if swallowed. May cause burns to the mouth, throat and stomach. May cause gastrointestinal irritation, nausea, vomiting and diarrhea.
Carcinogenicity status:	This product does not contain any components in concentrations greater than or equal to 0.1% that as known or suspected carcinogens by NTP, IARC, ACGIH, or OSHA.

Acute Toxicity

Oral LD50:	no information available
Dermal LD50:	no information available
Inhalation LC50:	no information available

Component Name CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
Trade Secret Ingredients	>5000 mg / kg (Rat)	-----	-----

Mutagenicity / Genotoxicity:	No mutagenicity or genotoxicity studies have been carried out with this product.
Other information:	Data based on a product of similar composition and conclusions are drawn from sources other than direct testing.

12. ECOLOGICAL INFORMATIONExotoxicological Information

Acute aquatic toxicity

Fish:	no information available
Crustacea:	no information available
Algae / aquatic plants:	no information available

Component Name CAS Number	Algae / aquatic plants	Fish	Toxicity to daphnia and other aquatic invertebrates
Trade Secret Ingredients	-----	LC50 (48h static) 1460-1500 mg / L (Leuciscus idus melanotus)	-----

Mobility:	no information available
Persistence and degradability:	no information available
Bioaccumulation potential:	no information available

Chemical fate information: no information available
Other information: No other ecological studies have been carried out on this product.

13. DISPOSAL CONSIDERATIONS

Dispose of wastes: Dispose of product in an approved chemical waste landfill or incinerate in accordance with applicable federal, state, provincial and local regulations.

RCRA

Is the unused product a RCRA hazardous waste if discarded (Yes/No): Yes
If yes, the EPA Hazardous Waste Code is: D002 (corrosivity)

14. TRANSPORT INFORMATION

DOT

Status: Regulated
Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (Polyaluminum chlorosulfate solution)
DOT UN/NA Number: UN3264
Hazard Class: 8
Packing Group: III
ERG#: 154

ICAO/IATA

Status: Regulated
Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (Polyaluminum chlorosulfate solution)
UN Number: UN3264
Hazard Class: 8
Packing Group: III
ERG Code: 8L

IMDG

Status: Regulated
Proper Shipping Name: Corrosive Liquid, Acidic, Inorganic, N.O.S. (Polyaluminum chlorosulfate solution)
DOT UN/NA Number: UN3264
Hazard Class: 8
Packing Group: III
EmS: F-A; S-B

Harmonized Tariff Number: 3824.90
Flash Point: not applicable

15. REGULATORY INFORMATION

International Inventories

TSCA (United States):	All ingredients are on the inventory or exempt from listing.
Australia (AICS):	All of the components are not listed on the Australian Chemical Inventory.
Canada (DSL):	All ingredients are on the inventory or are exempt from listing.
Canada (NDSL):	None of the ingredients are on the inventory.
China (IECSC):	All ingredients are on the inventory or are exempt from listing.
EINECS (Europe Inventory of Existing Chemical Substances):	All ingredients are on the inventory or are exempt from listing.
ELINCS (European List of Notified Chemical Substances):	All components are on the inventory are not listed on ELINCS.

Product Name:

EXP 240315

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Rev. Date: 3/24/15

ENCS (Japan):

All of the components are not listed on the JPENCS Inventory.

South Korea (KECL):

All ingredients are on the inventory or exempt from listing.

Philippines (PICCS):

All of the components are not listed on the Philippines Inventory.

New Jersey Trade Secret Registry Number(s):

n/a

SARA Section 311/312 Hazard Class:

This product is classified as a SARA ACUTE HEALTH HAZARD.

Other Information:

This product does not contain any ingredients subject to the reporting requirements of SARA Title III, Section 313 (40 CFR Part 372).

16. OTHER INFORMATION

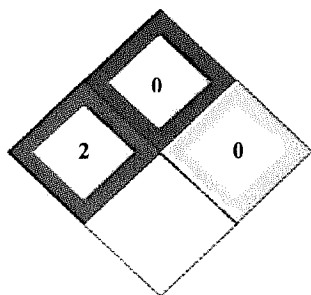
Person to contact: Product Manager

NFPA:

Health: 2

Flammability: 0

Instability: 0



HMIS:

Health: 2

Flammability: 0

Physical Hazard: 0

Creation Date: 10/13/09

Revision(s): 11/21/13 – updates

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information, and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal, and release, and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process unless specified in the text.



PROPOSAL

PROCESS WASTEWATER TECHNOLOGIES, LLC. | 9004 Yellow Brick Rd, Suite. D, Rosedale, MD, 21237

Phone: 410 238 7977 | Facsimile: 410 238 7559 | Email: volute@PWTech.us | Web: www.PWTech.us

PROJECT / REF: West Goshen Township WWTP, West Chester, PA – OPTION 1, Single large press	
TO: Mr. Maxwell Stoner, PE	DATE: 19 November, 2015
COMPANY: Glace Associates, Inc.	PWT #: VDPPA14117
ADDRESS: 3705 Trindle Road Camp Hill, PA 17011	REV: 0
	REP: Bill LaPorte
	FIRM: Envirep, Inc.
	CONTACT: wlaporte@envirep.com
SUBJECT: Scope for Volute Dewatering Press model ES353 and appurtenances for West Goshen Township WWTP, West Chester, PA	
SIZING: Sized to dewater 105 GPM of WWTP Anaerobically Digested Sludge@ 2% solids with an additional drum for redundancy	
NOTES:	

Scope of supply:

- One (1) PWT Volute Dewatering Press Model ES 353 unit
- One (1) Velodyne Polymer Preparation System Model VM-10P-1200-X0D
- One (1) Control system for the above
- Documentation (Submittals and O&M Manuals)
- Start-up and commissioning services
- Delivery to site

Notes on Dewatering Press, PWT Model ES353

Base unit supply

- The unit to be supplied will be an ES353 with a maximum capacity of 200GPM of thin sludge (<1%) solids or 2000 dry pounds per hour of dry solids for thick sludge (>3%)
- The Press consists of a flash mixing tank including gear motor, a flocculation tank including gear motor, 3 x 350 Series Dewatering Drums each with a drive motor, filtrate collection pan and support frame.



Construction

- The unit is all stainless steel.
- Electrical components are manufactured and tested prior to shipment to site in the United States.
- Gear Drives are SEW and Nissei GTR gear motors utilizing heloid gear reduction. They are one piece construction and are sealed for life.

Supplied spare parts

- No spare parts are included in the quoted price.

Notes on VeloBlend Polymer Preparation unit model VMN-10P-1200-X0D

Polymer preparation system consists of the following components:

Polymer Mixing Chamber

- A high energy, multi-zoned, hydro-mechanical mixing device designed to effectively activate, dilute and mix polymer and dilution water utilizing an impeller designed to produce variable intensity, back-flow mixing action to optimize polymer performance without damage to the polymer's molecular structure.
- Mixer Motor: ½ HP, 90 VDC, 1750 RPM, Wash-Down Duty with keyless shaft and left hand impeller mounting screw
- Mechanical Mixer Shaft Seal and Seal Flushing Assembly with ON/OFF Valve
- Velo-Check® neat polymer poppet style check valve specifically designed to isolate neat polymer and dilution water. The check valve shall be held in place by a quick release pin for easy assembly and disassembly
- Materials of construction are PVC and Lexan (Body), Viton, SS304 and ceramic (Seals) and SS304
- Pressure Rating: 100 psi

Neat Polymer Metering Pump

- A stainless steel & Viton 10GPH progressive cavity metering pump shall be provided
- ½ HP, 2500 RPM, 90 VDC, TEFC Motor with 10:1 Gear Reducer
- Thermal type loss of polymer flow sensor
- Metering pump calibration assembly with isolation valves: (1000 ml)

Dilution Water Inlet and Solution Outlet Assembly

- Primary 120-1200 GPH controllable dilution water flow
- 1" FNPT water inlet connection with Dilution Water ON/OFF Solenoid Valve
- Low differential pressure alarm switch
- 0-160 psi inlet water pressure gauge (stainless steel, liquid filled)

Construction

- Frame and fasteners are 304 stainless steel. Frame is open design for access to all components and is designed for bolt-down installation.

Notes on Electrical and Controls

Electrical and Control

- System will run on a single 208/240/480VAC, 3-phase, 60 Hz, power supply (client specified)



- Unit includes complete control system for unit and ancillary equipment including operation of the polymer preparation system and VFD control for feed pump.
- System may include interlocks for Conveyor start-up, shut down and E-stop if required
- Control panel is NEMA 4X rated manufactured in Stainless Steel type 304
- Control panel includes system running and system fault outputs to plant PLC
- Control system may utilize a system flow meter (not included in this proposal) and PID loop to allow operator to set the system flow.
- A junction box on the polymer preparation skid is pre-wired to the polymer preparation components and designed for easy on-site connection to the main Volute system control panel.
- Junction box is NEMA 4X FRP and includes numbered terminal block & wires with terminal block legend.

General Notes

Documentation:

Price includes all documentation including submittals and O&M manuals in hard copy and electronic (PDF) form.

Start-up services:

Price includes the following start-up services -

- Start-up and training services for four (4) consecutive days (8 hours per day, Monday-Friday) of on-site services by a PWT field service engineer and/or manufacturer's representative including polymer and pump start-up service.
- Phone consultation regarding installation will also be provided.
- Should additional services be deemed necessary by the PURCHASER, the additional services can be procured from PWT on a per diem basis. The current rate is \$800 per day plus travel.

Items not included in this proposal

- Taxes, permits and bonding
- Any civil works including, but not limited to, any building works, construction of suitable foundations, and access structures.
- Installation including, but not limited to, mechanical, plumbing, and electrical hook-ups
- Unloading on site and storage

Delivery and Freight

- Submittals issued approximately four (4) weeks from receipt of written Purchase Order
- Delivery is approx. sixteen (16) weeks from receipt of written acceptance of Submittal documents
- Deliver to site for all components is **INCLUDED in the price.**

Governing Terms and Conditions and Warranty

- This budget price is subject to Process Wastewater Technologies, LLC. Standard Terms and Conditions and Standard Warranty as attached with the exception of the following:
 - No exceptions

PRICE

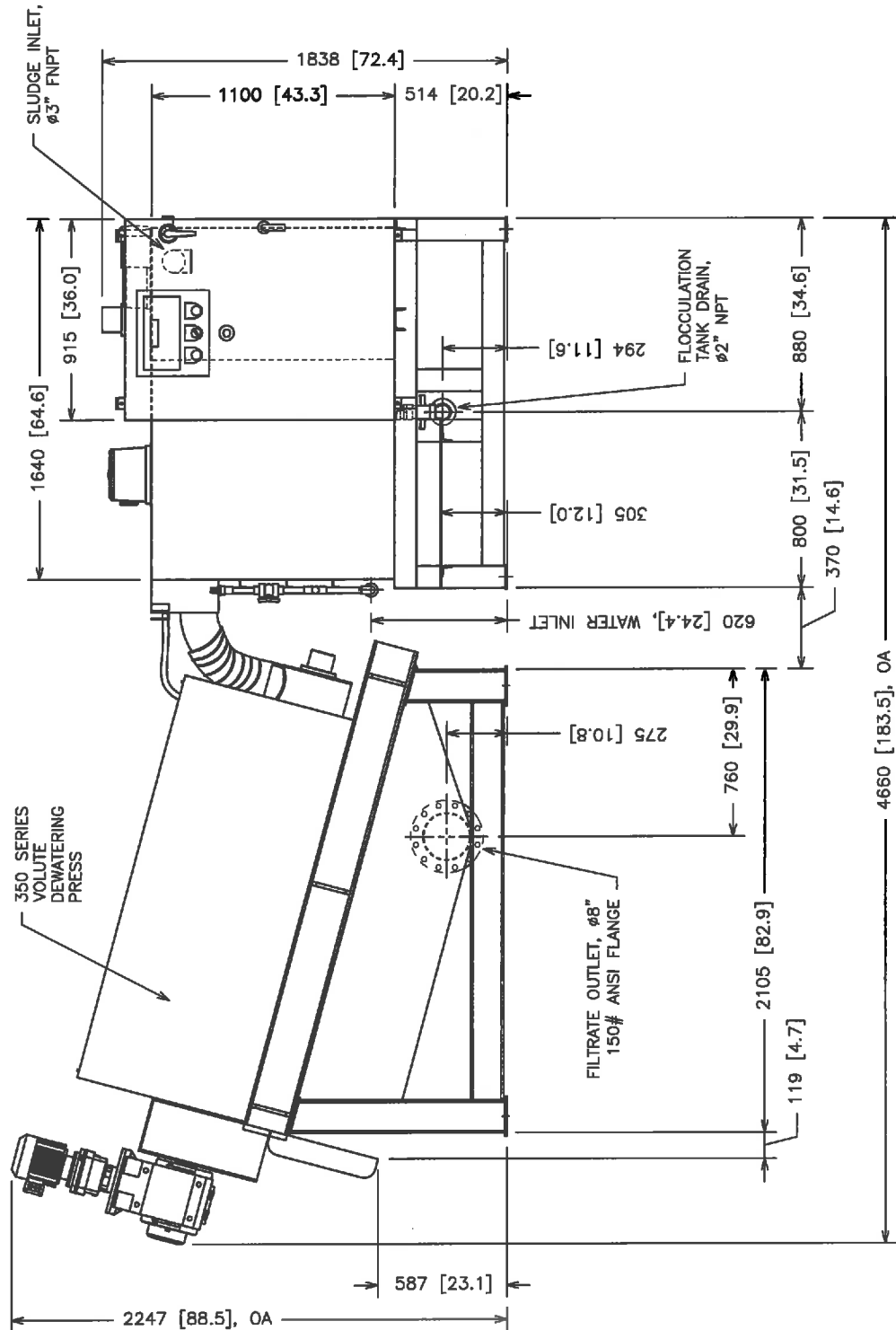
Total price as per this proposal:



Volute Dewatering Press Specification Sheet - ES353

General Data	Model Information	Model:	ES353
		Over All Dimensions:	183" x 83" x 88" (L x W x H)
		Optimal Space requirement of installation:	244" x 167" x 120" (L x W x H)
		Minimum Opening dimensions for installation:	60" x 84"
		Weight	Empty: 7480 lbs Operating: 11,550 lbs
		Solids throughput:	2100 Dry pounds per hour
		Hydraulic throughput:	200 GPM
		Power use:	12.4 HP
		Washwater use:	6GPM intermittent, 15 GPH total
Dewatering Drum	General	Dimension:	13.75" diameter x 72" long
		Quantity:	3
		Thickening Zone:	Type 304 Stainless Steel
		Dewatering Zone:	Type 304 Stainless Steel
		Screw:	304 Stainless Steel with CoCr coating
	Drive Info	Gear Motor Supplier:	SEW Eurodrive
		Model:	KH97 R57 DV100M4
		Motor Power:	2.2 kW (3.0HP) 4-Pole
		Insulation:	TEFC / IP65
		Gear Reduction:	199 : 1
Flash mixing tanks	General	Dimensions:	24" x 39" x 43" (L x W x H)
		Volume	174.4 Gallons
		Working Volume:	154.6 Gallons
		Material	Type 304 Stainless Steel
	Drive Info	Gear Motor Supplier:	Nissei Corporation
		Model:	FSW-35-15-T040 WEX
		Motor Power:	0.4 kW 4-Pole
		Motor Insulation:	TENV / IP65
		Gear Reduction:	15 : 1

Flocculation tank	General	Dimensions: 39" x 39" x 43" (L x W x H) Volume: 290.6 Gallons Working Volume: 154.6 Gallons Material: Type 304 Stainless Steel
	Drive Info	Gear Motor Supplier: Nissei Corporation Model: FSW-55-60-150 WEX Motor Power: 1.5 kW (2.0HP) 4-Pole Motor Insulation: TEFC / IP65 Gear Reduction: 60 : 1
Electrical	General	Supply Voltage: 208/240/440/480 VAC Service: 3-Phase, 3-Wire (No Neutral) Control Voltage: Dual - 24VDC & 115VAC Minimum Required Breaker Size:* 39 Amps * 480 VAC
	Panel	Panel Size: 36"(w) x 48"(h) x 12"(d) Panel Material: Type 304 Stainless Steel Panel Rating: Nema 4X Control Module: Unitronics Vision 570 PLC
Polymer System		Supplier: Velocity Dynamics, Inc. Model: VM-10P-1200-X0D Mixing Type: Variable - Mechanical & Hydraulic Feed Pump Type: Progressive Cavity Polymer Feed Capacity: 0.5 - 10 Gallons per hour Water Use: 120 - 1200 Gallons per hour Dimensions: 24" x 34" x 42" (L x W x H) Weight: ~200 lbs
Connections		Feed Sludge: 3" ANSI 150# Flange Filtrate: 8" ANSI 150# Flange Drain: 2" FNPT Coupling Water: 3/4" FNPT Coupling Polymer Water Inlet: 1" FNPT Polymer Solutions Outlet: 1"FNPT Raw Polymer Feed Inlet: 1"FNPT



SIDE ELEVATION

DIMENSIONS: MM [INCHES]



**VOLUTE DEWATERING PRESS
ES353 GA DRAWING
ELEVATION VIEW**

JOB# PWT VDP ES353

DATE 17 MAY 2012

DRAWN PWTech Inc.

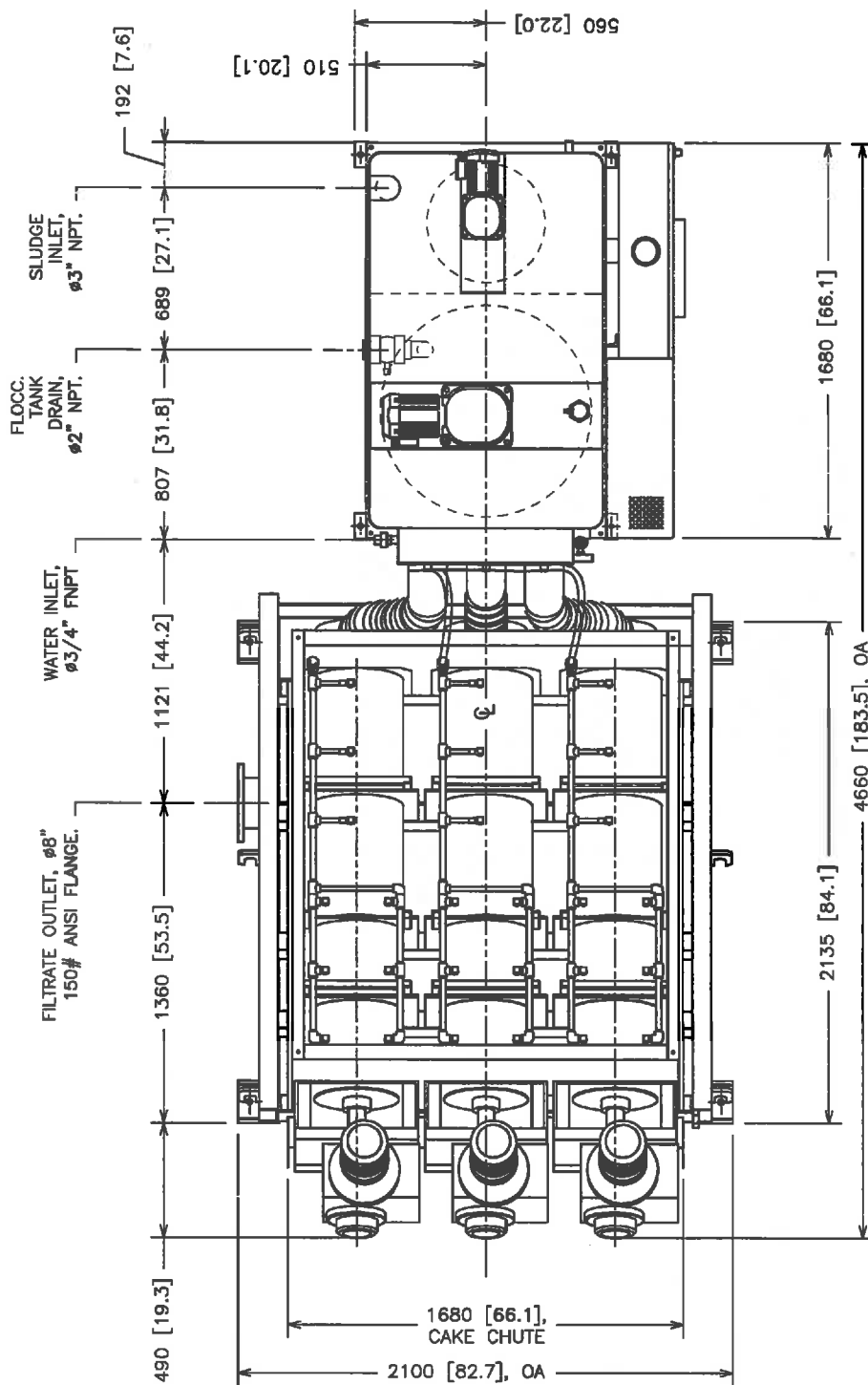
APPROV. ALEX DAVEY

SCALE

NTS

SHEET

1 OF 4



PLAN VIEW

DIMENSIONS: MM [INCHES]



**VOLUTE DEWATERING PRESS
ES353 GA DRAWING
PLAN VIEW**

JOB# PWT VDP ES353

DATE 17 MAY 2012

DRAWN PWTech Inc.

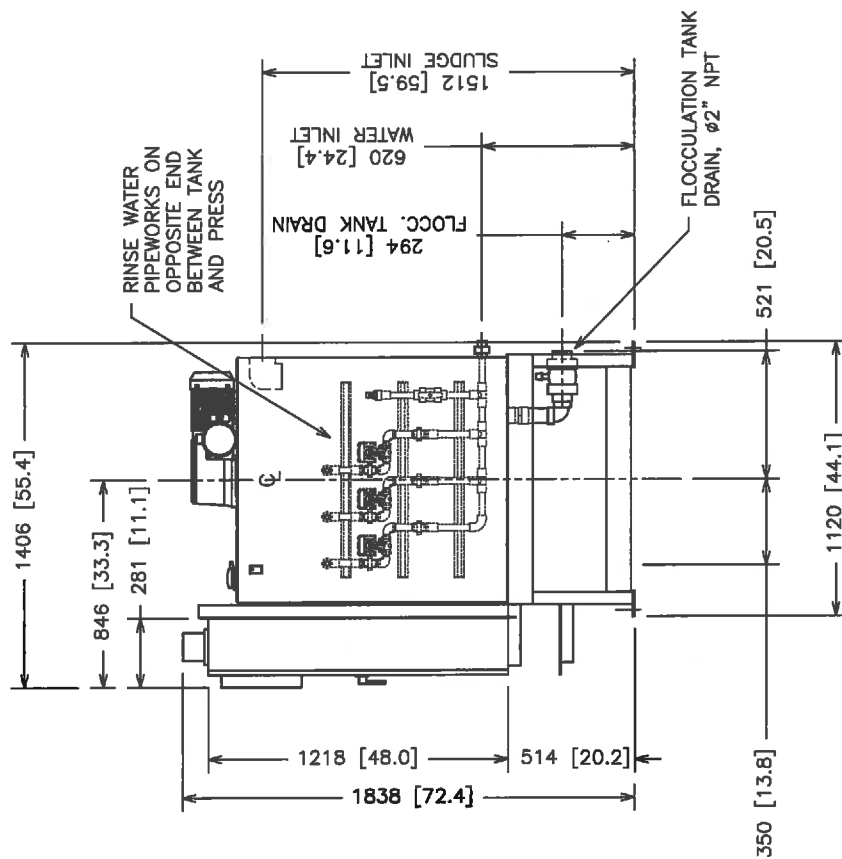
APPROV. ALEX DAVEY

SCALE

NTS

SHEET

2 OF 4



END ELEVATION

DIMENSIONS: MM [INCHES]



**VOLUTE DEWATERING PRESS
ES353 GA DRAWING
END ELEVATION**

JOB# PWT VDP ES353

DATE 17 MAY 2012

DRAWN PWTech Inc.

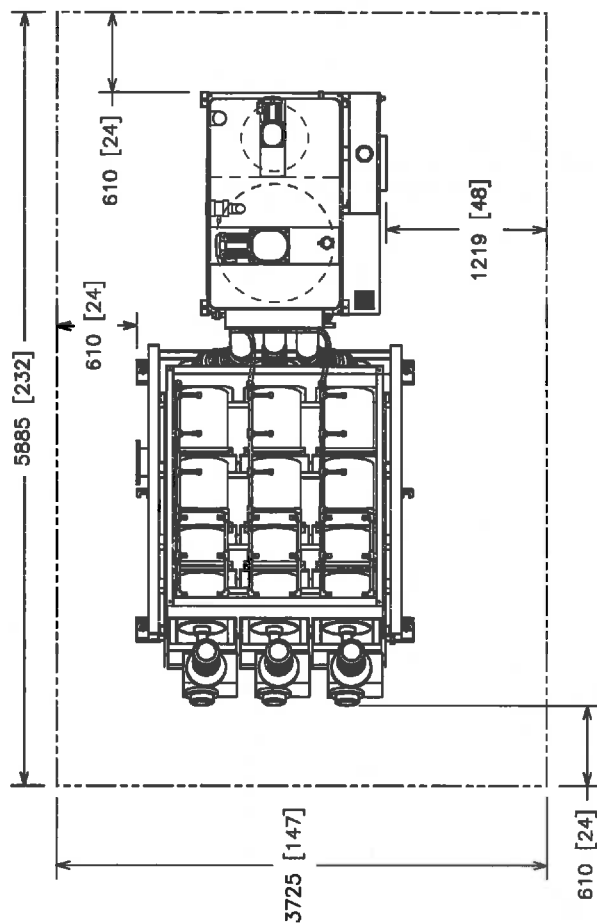
APPROV. ALEX DAVEY

SCALE

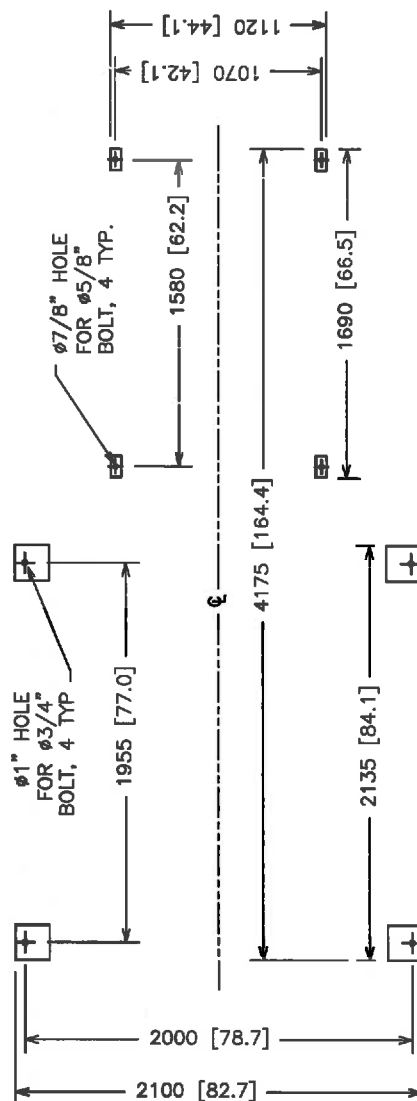
NTS

SHEET

3 OF 4



RECOMMENDED SPACE



ANCHOR POINTS

DIMENSIONS: MM [INCHES]



VOLUTE DEWATERING PRESS
ES353 GA DRAWING
REC. SPACE & ANCHORS PTS.

JOB# PWT VDP ES353

DATE 17 MAY 2012

DRAWN PWTech Inc.

APPROV. ALEX DAVEY

SCALE

NTS

SHEET

4 OF 4

VELOBLEND MODEL: VM-QP-XXX-X

DILUTION WATER:

1. $\phi 1"$ FNPT INLET
2. X TO XX GPM FLOW RANGE

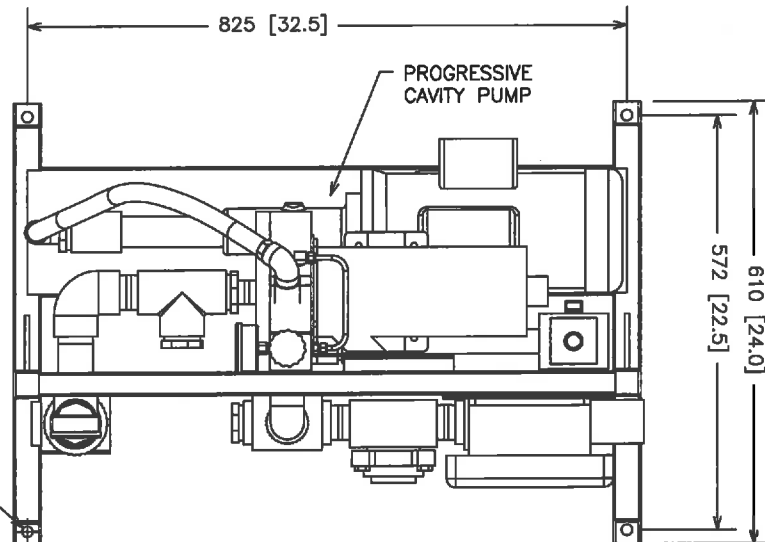
POLYMER:

1. $\phi 1"$ FNPT INLET
2. X.XX TO X GPH FLOW RANGE

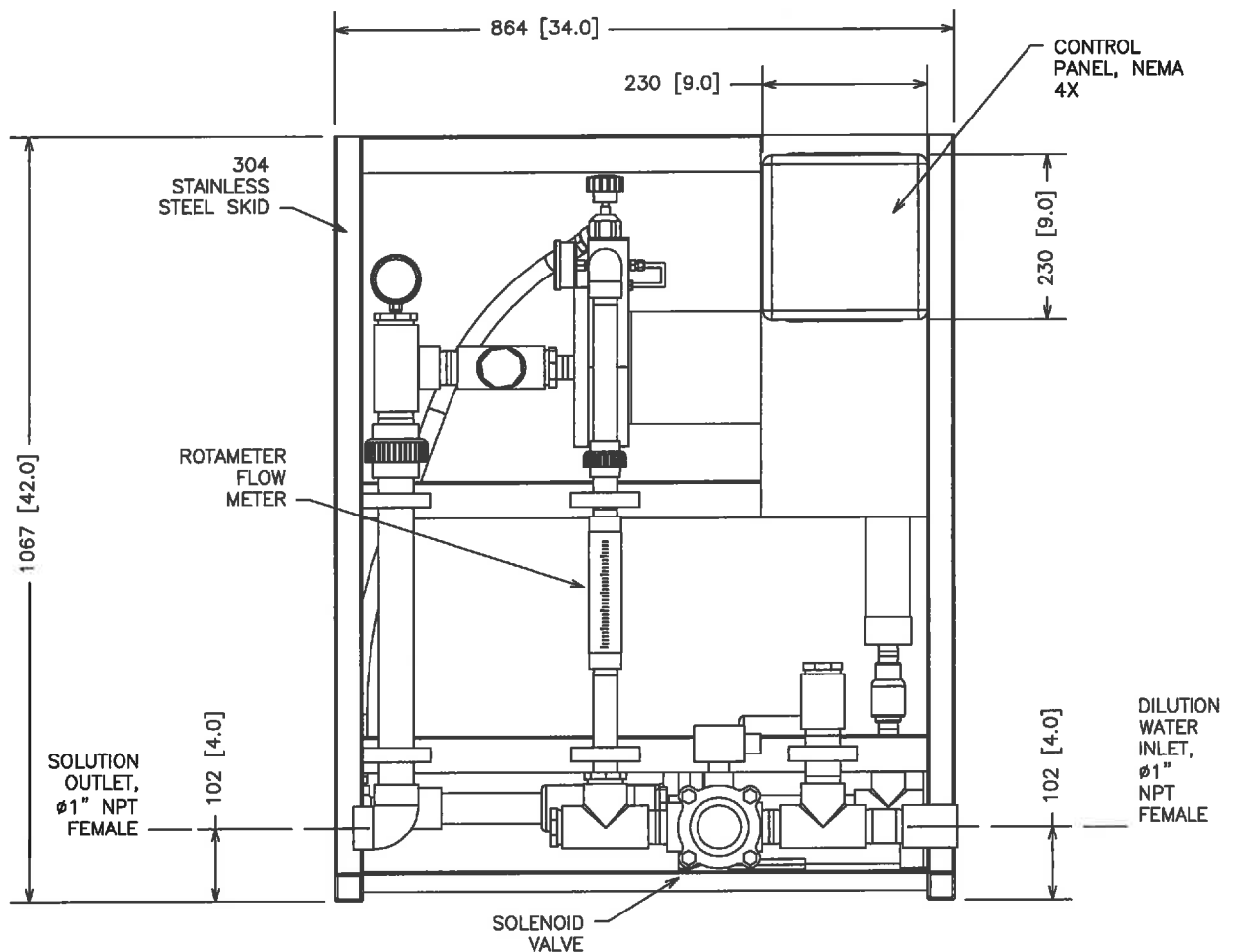
SOLUTION:

1. $\phi 1"$ FNPT OUTLET

$\phi 15$ [$\phi 0.6$]
THRU, 4 TYP.



PLAN



ELEVATION

DIMENSIONS: MM [INCHES]



**VELODYNE POLYMER PUMP
VM-P-XXX-X GA DRAWING
FRONT ELEVATION & PLAN**

JOB# PWT VM-P-XXX-X

DATE 23 MAR 2009

DRAWN PWTech Inc.

APPROV. ALEX DAVEY

SCALE

NTS

SHEET

1 OF 2

VELOBLEND MODEL: VM-P-XXX-X

DILUTION WATER:

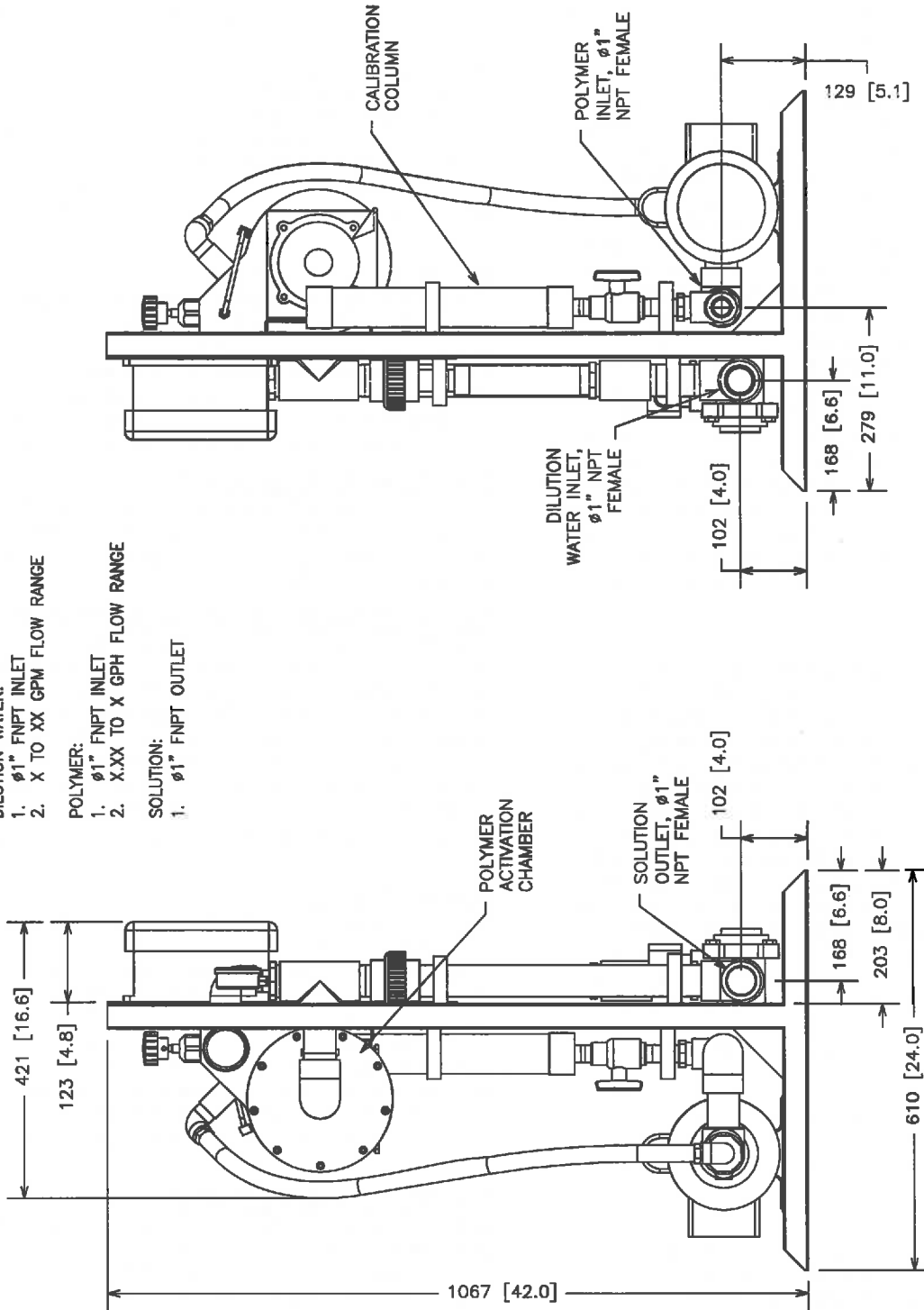
1. $\phi 1"$ FNPT INLET
2. X TO XX GPM FLOW RANGE

POLYMER:

1. $\phi 1"$ FNPT INLET
2. XXX TO X GPH FLOW RANGE

SOLUTION:

1. $\phi 1"$ FNPT OUTLET



RIGHT ELEVATION

LEFT ELEVATION

DIMENSIONS: MM [INCHES]



VELODYNE POLYMER PUMP VM-P-XXX-X GA DRAWING RIGHT & LEFT ELEVATION

JOB# PWT VM-P-XXX-X

DATE 23 MAR 2009

DRAWN PWTech Inc.

APPROV. ALEX DAVEY

SCALE

NTS

SHEET

2 OF 2

Process Wastewater Technologies, LLC Standard Terms and Conditions

These below terms and conditions shall exclusively govern the sale of all goods and related services by Process Wastewater Technologies, LLC ("PWT") to Buyer.

Item 1. ACCEPTANCE

Buyer may accept the preceding offer by noting acceptance in the space provided on the preceding offer sheet, if such space is provided, or by written purchase order. No oral acceptance shall be effective. This writing is intended by the parties as a final expression of their agreement and, in conjunction with the accompanying signed offer or purchase order and the PWT Standard Limited Warranty ("PWT Standard Limited Warranty"), is intended as a complete and exclusive statement of the terms of their agreement. Acceptance or acquiescence in a course of performance rendered under this agreement shall not be relevant to determine the meaning of this agreement even though the accepting or acquiescing party has knowledge of the nature of the performance and opportunity for objection. No agent, employee or representative of PWT has any authority to bind the Seller to any affirmation, representation or warranty concerning the equipment, components or related services sold under this agreement, and unless an affirmation, representation or warranty made by an agent, employee or representative is specifically included within this written agreement, it has not formed a part of the basis of this agreement and shall not in any way be enforceable.

Item 2. CANCELLATION

Upon acceptance of the preceding offer, Buyer shall have no right to cancel this agreement or any part thereof, except under the conditions specified in this provision or otherwise agreed to in writing by both parties. Any cancellation by Buyer of this agreement must be in writing and shall be deemed effective upon receipt by PWT. In the event of cancellation by Buyer prior to the commencement of production of the goods specified under this agreement, Buyer shall pay PWT a cancellation charge equal to all of the costs incurred by PWT under this agreement up to the time of cancellation, plus fifteen percent (15%) of the full order amount. In the event that production of the goods under this agreement has commenced prior to cancellation, Buyer shall pay a cancellation charge equal to all of the costs incurred by PWT under this agreement up to the time of cancellation, plus an amount equal to the greater of: the value of the goods already completed under the agreement; or fifteen percent (15%) of the full order amount.

Item 3. PRICES

Unless otherwise stated in this offering, prices are F.O.B. the PWT manufacturing facility. Charges for on-site technical assistance performed by a factory technical representative are not included unless indicated.

Item 4. VALIDITY

Unless otherwise specified, the preceding offer is valid for acceptance for (30) thirty days and is subject to review thereafter. Prices may be extended beyond thirty (30) days only if confirmed in writing by PWT.

Item 5. PAYMENT TERMS

Ninety percent (90%) of the purchase price under this agreement shall be invoiced net thirty (30) days upon shipping, or upon PWT's offer to ship. The remaining ten percent (10%) of the purchase price under this agreement to be invoiced net

thirty (30) days upon completion and/or performance of all related services under this agreement. Interest will be charged on the unpaid invoiced balance at the rate of one and a half percent (1½%) per month for any amount received after thirty (30) days from the date of invoice. Any collection costs and/or attorney fees incurred by PWT in order to collect payment due will be invoiced to the Buyer, and Buyer agrees to pay said costs.

Item 6. FEES AND TAXES

Buyer shall pay directly or reimburse PWT for payment of any and all applicable customs, sales, use, excise or other fees and taxes associated with the production and delivery of goods under this agreement. Buyer is responsible for and bears the risk of establishing, if applicable, a valid exemption from any tax, and shall indemnify, defend and hold PWT harmless for any loss, cost or expense relating to any such exemption.

Item 7. DELAYED SHIPPING

If Buyer specifies a shipping date more than one (1) year from the date of acceptance of the preceding offer, the price stated in the preceding offer for the same goods shall be increased by a figure of six percent (6%).

Item 8. FINANCIAL RESPONSIBILITY OF BUYER

If at any time before shipment, Buyer's financial ability to pay becomes impaired or unsatisfactory, PWT shall have the right to require Buyer to make payment in full before shipment. In addition, if at any time before shipment, any proceeding is brought by or against Buyer under the bankruptcy or insolvency laws, PWT shall have the right to cancel this contract and Buyer shall pay PWT a cancellation charge equal to all of the costs incurred by PWT up to the time of termination, plus fifteen percent (15%) of the purchase order amount.

Item 9. SHIPPING

Unless otherwise specified, all equipment and components will be shipped in one lot by the lowest cost method at the discretion of PWT. Any additional shipping requests by Buyer may be subject to additional shipping and handling charges. All shipments shall be F.O.B. the PWT manufacturing facility in Cincinnati, Ohio. Delivery to the carrier shall constitute delivery to Buyer for purpose of transfer of risk of loss or damage in transit, and any delivery deadlines specified in this agreement. Buyer is responsible for obtaining any desired cargo insurance and shall pursue any loss or damage claims solely with the carrier.

Item 10. DELIVERY SCHEDULE

Unless otherwise specified, delivery dates under this agreement are approximate, and failure to meet an exact delivery date shall not constitute a breach of this agreement unless delivery is not effected within a reasonable time after the specified delivery date.

Item 11. INSPECTION

Inspection by Buyer or Buyer's representative of the goods specified under this agreement will be permitted prior to shipment at the PWT manufacturing facility in Cincinnati, Ohio, at a time mutually agreeable to both parties. Inspection will be



allowed only inasmuch as such inspection does not unreasonably interfere with PWT's production work flow. Complete details of any requested inspection must be submitted to PWT in writing, at least two weeks in advance of the requested inspection date. Any inspection under this provision must be completed prior to shipment of any goods under this agreement.

Item 12. OFFER BASIS

This agreement is exclusively based upon drawings and specifications in the possession of PWT at the time of this agreement. PWT expressly reserves the right to modify the price and other terms of this agreement as reasonable, should additional drawings, documents, or other addenda be required to produce or deliver the goods and/or services provided under this agreement.

Item 13. LIMITED WARRANTY

PWT's warranty liability under this agreement is limited to the terms listed in the PWT Standard Limited Warranty that accompanies these Terms and Conditions, and is incorporated herein by reference. No other warranty, express or implied, is made with respect to the goods and/or services provided under this agreement.

Item 14. MEET AND CONFER

The parties shall amicably work together to negotiate and resolve any controversy or dispute arising out of, or in connection with this agreement or its interpretation, performance or nonperformance or breach thereof. In particular, in the event of a disagreement, the parties shall meet and confer and attempt in good faith to resolve their differences. At the request of the aggrieved party, a face-to-face meeting between decision-makers of the parties shall be arranged at the offices of the non-aggrieved party. Such a meeting shall occur within fourteen days of the delivery of the written request of the aggrieved party, unless otherwise agreed by the parties.

Item 15. ARBITRATION

If, after meeting and conferring as provided under this agreement, the parties are unable to resolve their differences, any disputes shall be settled by binding arbitration in accordance with the following procedures:

- (a) The Arbitration shall be conducted in accordance with the Commercial Arbitration Rules of the American Arbitration Association ("AAA") in effect at the time of the arbitration, except as may be modified herein or by mutual agreement of the parties. The location of the arbitration shall be Cary, North Carolina.
- (b) The arbitration shall be conducted by one arbitrator jointly selected by the parties. If the parties are unable to agree upon an arbitrator after thirty (30) days, the arbitrator shall be selected under AAA rules.
- (c) The award shall be in writing and shall state the reasons for the award and shall be final and binding on the parties. The award may also include an award of costs, including reasonable attorneys' fees and disbursements. Judgment upon the award may be entered by any court having competent jurisdiction over the parties or their assets.

Item 16. GOVERNING LAW

All disputes and matters arising under, in connection with, or incidental to this contract shall be litigated, if at all, in and before the Superior Court of the State of North Carolina, located in Wake County, State of North Carolina, USA to the exclusion of other courts of other states, the United States or other countries and to the exclusion of other venues. The parties expressly consent to the exclusive jurisdiction of this court and agree that this venue is convenient and not to seek a change of venue or to dismiss this action on the grounds of *forum non conveniens*, and not to remove any litigation from that court to a federal court. This Agreement shall be construed in accordance with and governed by the substantive laws of the State of North Carolina, to the extent state law applies. An action for breach of this agreement must be commenced within two (2) years after the cause of action has accrued.

Item 17. WAIVER AND MODIFICATION

No waiver by either party of any breach, default or violation of any term, warranty, representation, agreement, covenant, condition or provision of this agreement shall constitute a waiver of any subsequent breach, default, or violation of the same or other term, warranty, representation, agreement, covenant, condition or provision. No modification, amendment, extension, renewal, rescission, termination or waiver of any of the provisions contained in this agreement, or any future representation, promise or condition in connection with the subject matter of this agreement, shall be binding upon either party unless in writing and signed by both parties.

Item 18. SEVERABILITY

Any provision of this agreement which is invalid, prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective solely to the extent of such invalidity, prohibition or unenforceability without invalidating the remaining provisions hereof, and any such invalidity, prohibition or unenforceability in any such jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

Item 19. ASSIGNMENT AND DELEGATION

Neither party to this agreement shall have the right to assign or delegate its interest in or obligations under this Agreement without the prior written consent of the other party, which shall not be unreasonably withheld. The merger, acquisition, reorganization or other restructuring of PWT shall not constitute an assignment under the terms of this agreement provided the surviving entity has assumed all of the obligations of PWT under this agreement. The transfer of any rights under this agreement from PWT to any entity controlled by or affiliated with PWT shall not constitute an assignment under the terms of this agreement provided PWT retains all of its obligations under this agreement. The rights and obligations of the parties to this Agreement shall be binding upon, and enforceable by their respective heirs, successors and permitted assigns.



PWT LLC Standard Limited Warranty

Item 1. LIMITATION OF LIABILITY

The only warranty which Process Wastewater Technologies, LLC ("PWT") makes is that warranty which is set forth in the preceding agreement and which is further detailed below:

THE GOODS SPECIFIED UNDER AGREEMENT WITH PWT ARE PROVIDED "AS IS" AND PWT DOES NOT MAKE ANY OTHER EXPRESS WARRANTIES OR ANY IMPLIED WARRANTIES WITH RESPECT TO THESE GOODS AND/OR RELATED SERVICES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR USE.

In addition, PWT does not assume and expressly disclaims any liability for (i) any SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES which anyone may suffer as a result of the sale, delivery, service, use, or loss of use, of any goods and/or services provided by PWT, or (ii) any charges or expenses of any nature which are incurred without the express written consent of PWT. In particular, PWT does not warrant that any goods provided are free from any claim of any third person by way of infringement or the like, and PWT expressly disclaims any liability for any claim of infringement or the like that may result from the sale, delivery, service, use, or loss of use of any goods and/or services provided by PWT.

PWT's obligation under this warranty is expressly limited to the repair or replacement of any part or parts that are proved to the satisfaction of PWT to have failed prematurely or because of a fault in workmanship or materials.

PWT's total liability under this warranty or in connection with any claim involving any goods or services is expressly limited to the purchase price of the goods and/or services in respect of which damages are claimed.

Item 2. DEFECTS WARRANTY

PWT warrants that the goods manufactured by PWT shall be free from defects in material and workmanship for the shorter period of: (i) eighteen (18) months from the date of purchase order; or (ii) twelve (12) months from the delivery of the specified goods.

PWT's liability under this warranty or in connection with any other claim relating to goods manufactured and delivered by PWT is limited to the repair, or at our option, the replacement or refund of the purchase price, of any products or parts or components which are returned to PWT freight prepaid, and which PWT determines, in its discretion, are defective in material and workmanship. Products or parts or components thereof which are repaired or replaced by PWT will be returned to the buyer freight collect.

Item 3. PRODUCTS OF OTHER MANUFACTURERS

PWT makes no warranty with regard to any products not manufactured by PWT, including but not limited to electrical components or equipment and other prime movers.

Item 4. TYPES OF DAMAGES AND CLAIMS FOR WHICH PWT INC. IS NOT RESPONSIBLE

The following non-exclusive list of items are specifically not covered by the PWT Standard Limited Warranty and, in the event of their occurrence, will render the PWT Defects Warranty null and void:

- defects which are caused by improper installation, improper or abnormal use or operation, or improper storage or handling;
- defects caused by the failure of the buyer or user to perform and log normal preventative maintenance;
- defects caused by the use of replacement parts not approved in writing by PWT;
- defects caused by repairs by persons not authorized in writing by PWT;
- defects caused by modifications or alterations made by the buyer or user;
- any damage to our any product occurring while it is in the possession of the buyer or user.

Item 5. EQUIPMENT SAFETY PARAMETERS:

With respect to operation of the equipment, it is the responsibility of the buyer to define and provide any safety device(s) or associated safety device(s) (other than that which is ordinarily furnished by PWT) which may be necessary and/or required, and to establish safety procedures and operational instructions to safeguard the operator(s) during maintenance, cleaning, or any use of the equipment whatsoever, and to subsequently ensure that the equipment is operated in conformance with all applicable safety procedures, laws, regulations and instructions.

It is also the responsibility of the buyer to enforce all safety regulations and operational instructions and to maintain the equipment in a safe condition (e.g., guards in place; warning, caution and/or important labels affixed; electrical boxes secure; interlocks operational; etc.). In particular, all warning, caution and/or important labels must be maintained in a readable condition, and if necessary, replaced with new labels.

Additionally, as the nature of the equipment does not always make it possible to fully prevent operator access from rotating components, maintenance or cleaning of any nature must not be performed on the equipment without first disconnecting all power.

Item 6. OPERATOR SAFETY COMPLIANCE:

Buyer warrants and agrees that because it has sole control over the equipment, it shall be solely responsible for safety compliance. Operator access and use of equipment, and full compliance with all provisions of the Operator Safety section of PWT Instruction Manuals are essential and the user's responsibility; the provisions of that section being expressly incorporated herein.





PROPOSAL

PROCESS WASTEWATER TECHNOLOGIES, LLC. | 9004 Yellow Brick Rd, Suite. D, Rosedale, MD, 21237

Phone: 410 238 7977 | Facsimile: 410 238 7559 | Email: volute@PWTech.us | Web: www.PWTech.us

PROJECT / REF: West Goshen Township WWTP, West Chester, PA – OPTION 2, Dual presses at 50% of capacity	
TO: Mr. Maxwell Stoner, PE	DATE: 19 November, 2015
COMPANY: Glace Associates, Inc.	PWT #: VDPPA14117
ADDRESS: 3705 Trindle Road Camp Hill, PA 17011	REV: 0
	REP: Bill LaPorte
	FIRM: Envirep, Inc.
	CONTACT: wlaporte@envirep.com
SUBJECT: Scope for two (2) Volute Dewatering Press' model ES303 and appurtenances for West Goshen Township WWTP, West Chester, PA	
SIZING: Each unit is sized to dewater 53 GPM of WWTP Anaerobically Digested Sludge@ 2% solids.	
NOTES:	

Scope of supply:

- Two (2) PWT Volute Dewatering Press Model ES 303
- Two (2) Velodyne Polymer Preparation System VM-5P-600-x0D
- Two (2) Control system for the above
- Documentation, Startup and commissioning
- Delivery to site

Notes on Dewatering Press, PWT Model ES303

Base unit supply

- The unit to be supplied will be an ES303 with a capacity of about 100 GPM of thin sludge (<1%) or 1050 dry pounds per hour for heavier sludge (>3%).
- The Press consists of a flash mixing tank including gear motor, a flocculation tank including gear motor, 3 x 300 Series Dewatering Drums each with a drive motor, filtrate collection pan and support frame.



Construction

- The unit is all stainless steel and is manufactured in the USA utilizing components from the USA and Japan.
- Electrical components are manufactured and tested prior to shipment to site in the United States.
- Gear Drives are Nissei GTR gear motors utilizing heloid gear reduction. They are one piece construction and are sealed for life.

Notes on VeloBlend Polymer Preparation unit

Polymer preparation system consists of the following components:

Polymer Mixing Chamber

- A high energy, multi-zoned, hydro-mechanical mixing device designed to effectively activate, dilute and mix polymer and dilution water utilizing an impeller designed to produce variable intensity, back-flow mixing action to optimize polymer performance without damage to the polymer's molecular structure.
- Mixer Motor: ½ HP, 90 VDC, 1750 RPM, Wash-Down Duty with keyless shaft and left hand impeller mounting screw
- Mechanical Mixer Shaft Seal and Seal Flushing Assembly with ON/OFF Valve
- Velo-Check® neat polymer poppet style check valve specifically designed to isolate neat polymer and dilution water. The check valve shall be held in place by a quick release pin for easy assembly and disassembly
- Materials of construction are PVC and Lexan (Body), Viton, SS304 and ceramic (Seals) and SS304
- Pressure Rating: 100 psi

Neat Polymer Metering Pump

- A 5GPH stainless steel & Viton progressive cavity metering pump shall be provided
- ½ HP, 2500 RPM, 90 VDC, TEFC Motor with 10:1 Gear Reducer
- Thermal type loss of polymer flow sensor
- Metering pump calibration assembly with isolation valves: (500 ml)

Dilution Water Inlet and Solution Outlet Assembly

- Primary 60-600 GPH controllable dilution water flow
- 1" FNPT water inlet connection with Dilution Water ON/OFF Solenoid Valve
- Low differential pressure alarm switch
- 0-160 psi inlet water pressure gauge (stainless steel, liquid filled)
- Swing type PVC and Viton check valve

Construction

- Frame and fasteners are 304 stainless steel. Frame is open design for access to all components and is designed for bolt-down installation.

Notes on Electrical and Control

- System will run on a single 208/240/460VAC, 3-phase, 60 Hz, power supply (client specified)
- Unit includes complete control system for unit and ancillary equipment including operation of the polymer preparation system and VFD control for feed pump.
- System may include interlocks for Conveyor start-up, shut down and E-stop if required



- Control panel is NEMA 4X rated manufactured in Stainless Steel type 304
- Control panel includes system running and system fault outputs to plant PLC
- Control system may utilize a system flow meter (not included in this proposal) and PID loop to allow operator to set the system flow.
- A junction box on the polymer preparation skid is pre-wired to the polymer preparation components and designed for easy on-site connection to the main Volute system control panel.
- Junction box is NEMA 4X FRP, and includes numbered terminal block & wires with terminal block legend.

General Notes

Documentation:

Price includes all documentation including submittals and O&M manuals in hard copy and electronic (PDF) form.

Start-up services:

Price includes the following start-up services -

- Start-up and training services for four (4) consecutive days (8 hours per day, Monday-Friday) of on-site services by a PWT field service engineer and/or manufacturer's representative including polymer and pump start-up service.
- Phone consultation regarding installation will also be provided.
- Should additional services be deemed necessary by the PURCHASER, the additional services can be procured from PWT on a per diem basis. The current rate is \$800 per day plus travel.

Items not included in this proposal

- Taxes, permits and bonding
- Any civil works including, but not limited to, any building works, construction of suitable foundations, and access structures.
- Installation including, but not limited to, mechanical, plumbing, and electrical hook-ups
- Unloading on site and storage

Delivery and Freight

- Submittals issued approximately four (4) weeks from receipt of written Purchase Order
- Delivery is approx. sixteen (16) weeks from receipt of written acceptance of Submittal documents
- Deliver to site for all components is **INCLUDED in the price**.

Governing Terms and Conditions and Warranty

- This budget price is subject to Process Wastewater Technologies, LLC. Standard Terms and Conditions and Standard Warranty as attached with the exception of the following:
 - No exceptions

PRICE

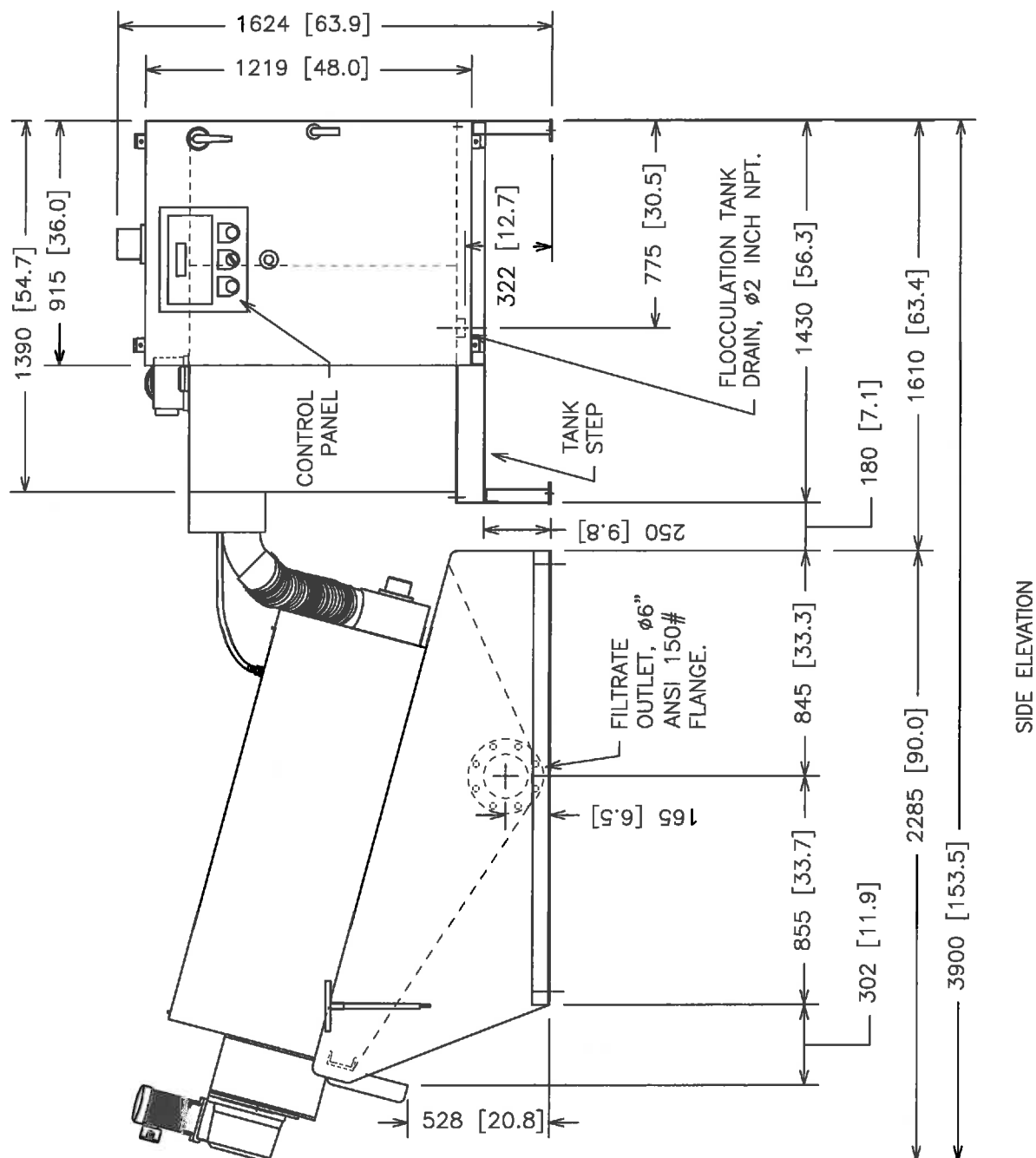
Total price as per this proposal:



Volute Dewatering Press Specification Sheet - ES303

General Data	Model Information	Model:	ES303
		Over All Dimensions:	154" x 63" x 74" (L x W x H)
		Optimal Space requirement of installation:	280" x 146" (L x W)
		Minimum Opening dimensions for installation:	65" x 60"
		Weight	Empty: 4092 lbs
			Operating: 6611 lbs
		Solids throughput:	1050 Dry pounds per hour
		Hydraulic throughput:	105 GPM
		Power use:	3.9 HP
		Washwater use:	12 GPM intermittent, 30 GPH total
Dewatering Drum	General	Dimension:	12" diameter x 61" long
		Quantity:	3
		Thickening Zone:	Type 304 Stainless Steel
		Dewatering Zone:	Type 304 Stainless Steel
		Screw:	304 Stainless Steel with CoCr coating
	Drive info	Gear Motor Supplier:	Nissei Corporation
		Model:	FSW-55-750-T040-WEX
		Motor Power:	0.4 kW (0.54HP) 4-Pole
		Insulation:	TEFC / IP65
		Gear Reduction:	750 : 1
Flash mixing tanks	General	Dimensions:	20" x 33" x 39" (L x W x H)
		Volume	112.3 Gallons
		Working Volume:	98.2 Gallons
		Material	Type 304 Stainless Steel
	Drive Info	Gear Motor Supplier:	Nissei Corporation
		Model:	FSW-30-15-T020 WA
		Motor Power:	0.2 kW 4-Pole
		Motor Insulation:	TEFC / IP65
		Gear Reduction:	15 : 1

Flocculation tank	General	Dimensions:	33" x 33" x 39" (L x W x H)
		Volume	190.9 Gallons
		Working Volume:	167.0 Gallons
		Material:	Type 304 Stainless Steel
Drive Info		Gear Motor Supplier:	Nissei Corporation
		Model:	FSW-45-60-075 WEX
		Motor Power:	0.75 kW (1.0HP) 4-Pole
		Motor Insulation:	TEFC / IP65
		Gear Reduction:	60 : 1
Electrical	General	Supply Voltage:	208/240/440/480 VAC
		Service:	3-Phase, 3-Wire (No Neutral)
		Control Voltage:	Dual - 24VDC & 115VAC
		Minimum Required Breaker Size:*	12 Amps * 480 VAC
	Panel	Panel Size:	36"(w) x 48"(h) x 12"(d)
		Panel Material:	Type 304 Stainless Steel
		Panel Rating:	Nema 4X
		Control Module:	Unitronics Vision 570 PLC
Polymer System		Supplier:	Velocity Dynamics, Inc.
		Model:	VM-5P-600-X0D
		Mixing Type:	Variable - Mechanical & Hydraulic
		Feed Pump Type:	Progressive Cavity
		Polymer Feed Capacity:	0.25 - 5 Gallons per hour
		Water Use:	60 - 600 Gallons per hour
		Dimensions:	24" x 34" x 42" (L x W x H)
		Weight:	~200 lbs
Connections		Feed Sludge:	3" FNPT Coupling
		Filtrate:	6" ANSI 150# Flange
		Drain:	2" FNPT Coupling
		Water:	3/4" FNPT Coupling
		Polymer Water Inlet:	1" FNPT
		Polymer Solutions Outlet:	1"FNPT
		Raw Polymer Feed Inlet:	1"FNPT



DIMENSIONS: MM [INCHES]



VOLUTE DEWATERING PRESS ES-303 GA ELEVATION

JOB# PWT VDP ES-303 GA

DATE 10 MAR 2009

DRAWN PWTech Inc.

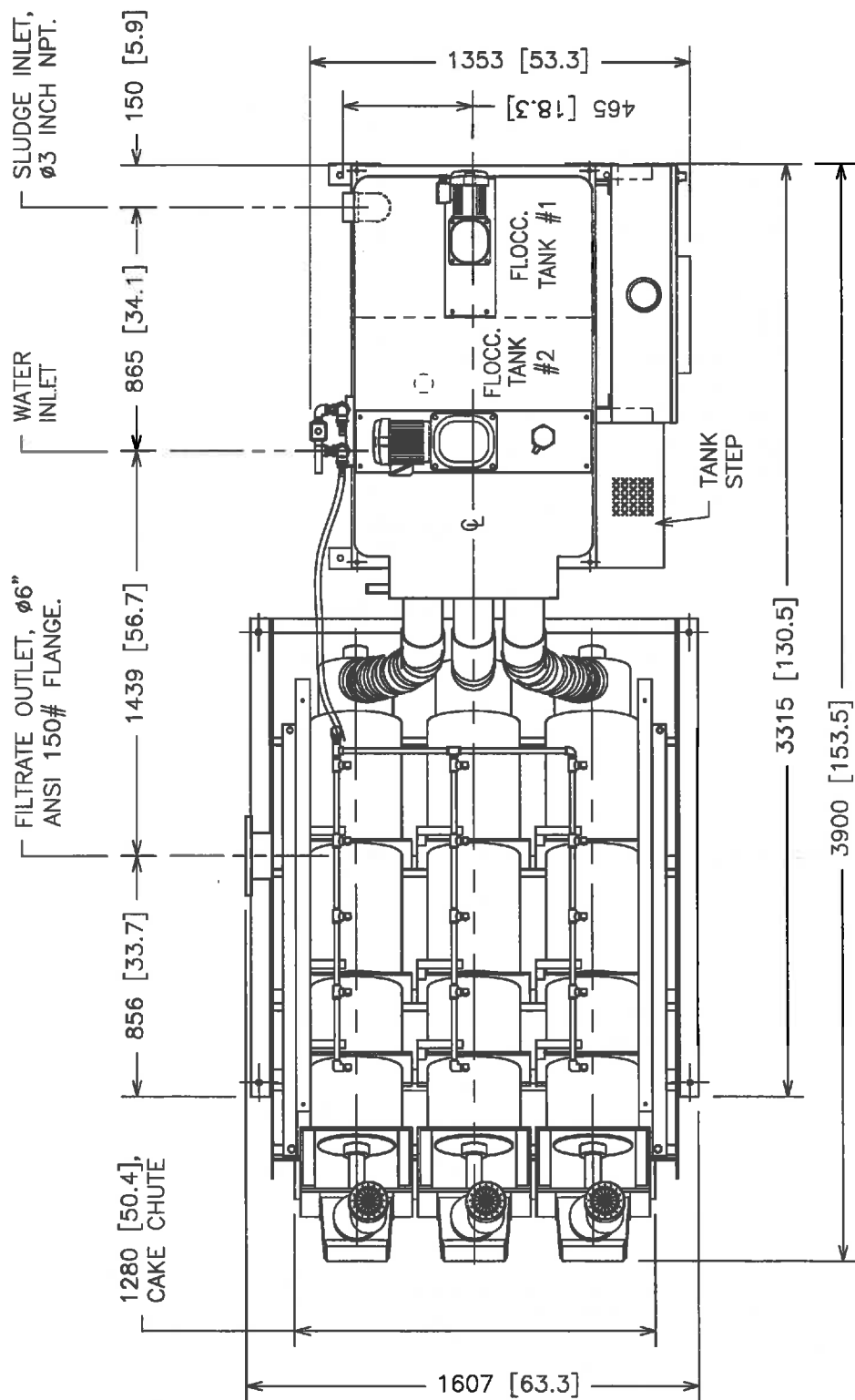
APPROV. ALEX DAVEY

SCALE

NTS

SHEET

1 OF 4



PLAN VIEW

DIMENSIONS: MM [INCHES]



**VOLUTE DEWATERING PRESS
ES-303 GA
PLAN**

JOB# PWT VDP ES-303 GA

DATE 10 MAR 2009

DRAWN PWTech Inc.

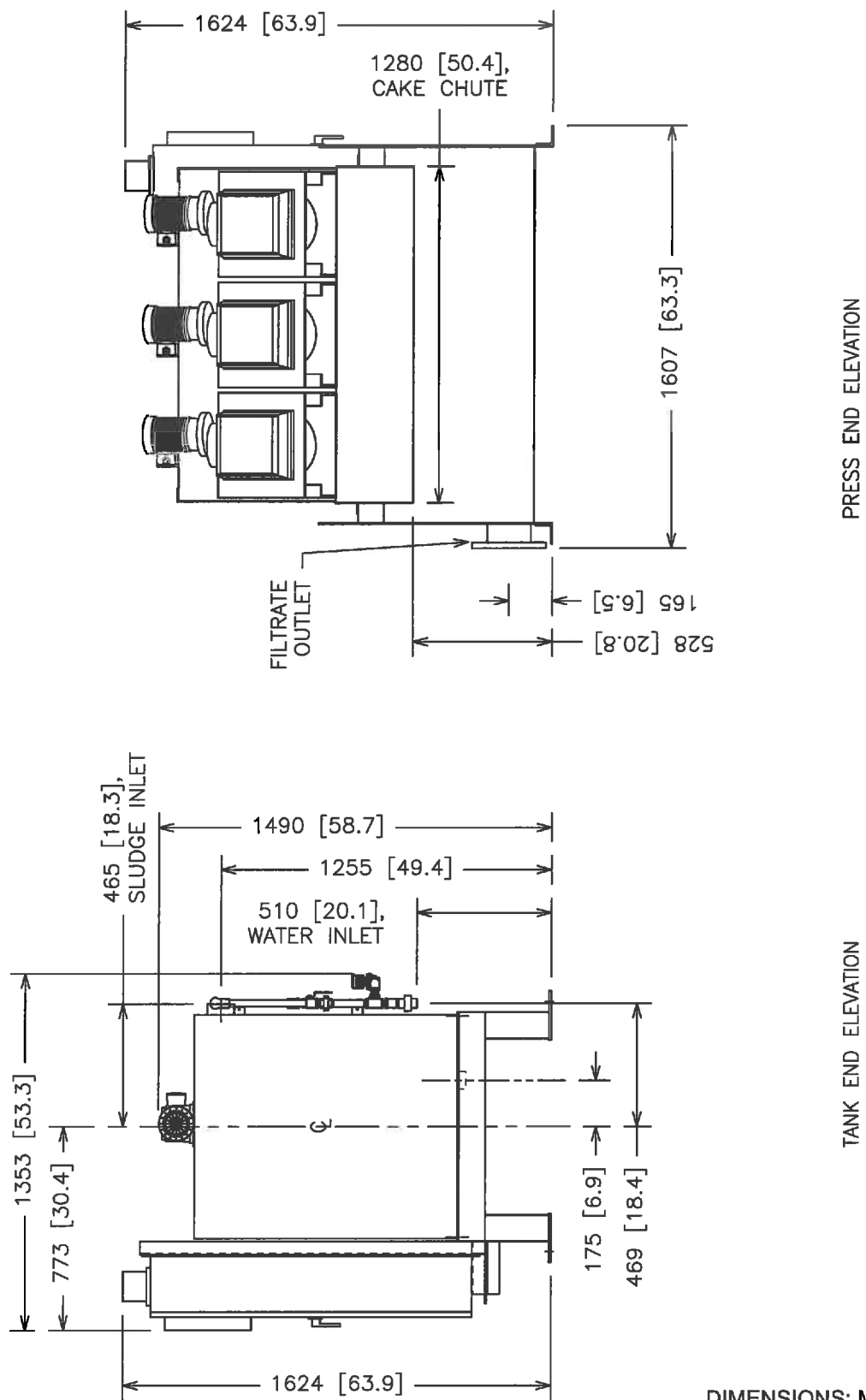
APPROV. ALEX DAVEY

SCALE

NTS

SHEET

2 OF 4



**VOLUTE DEWATERING PRESS
ES-303 GA
PRESS AND TANK END ELEV.**

JOB# PWT VDP ES-303 GA

DATE 10 MAR 2009

DRAWN PWTech Inc.

APPROV. ALEX DAVEY

SCALE

NTS

SHEET

3 OF 4

VELOBLEND MODEL: VM-OP-XXX-X

DILUTION WATER:

1. $\phi 1"$ FNPT INLET
2. X TO XX GPM FLOW RANGE

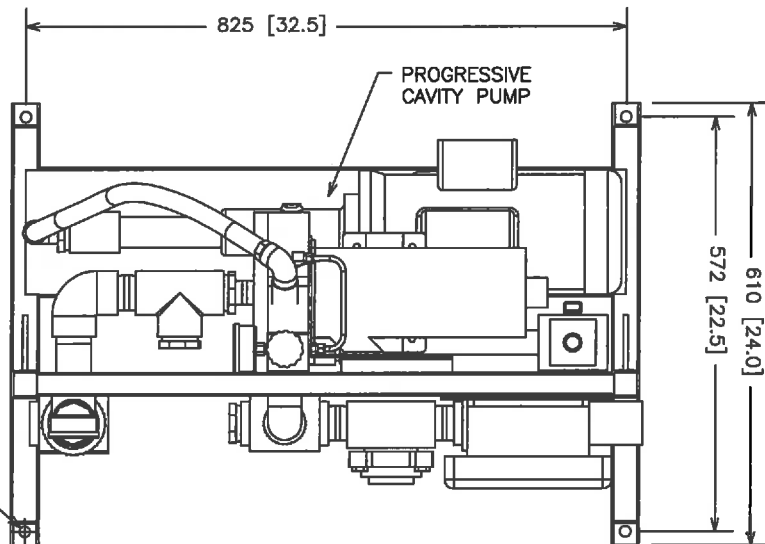
POLYMER:

1. $\phi 1"$ FNPT INLET
2. X.XX TO X GPH FLOW RANGE

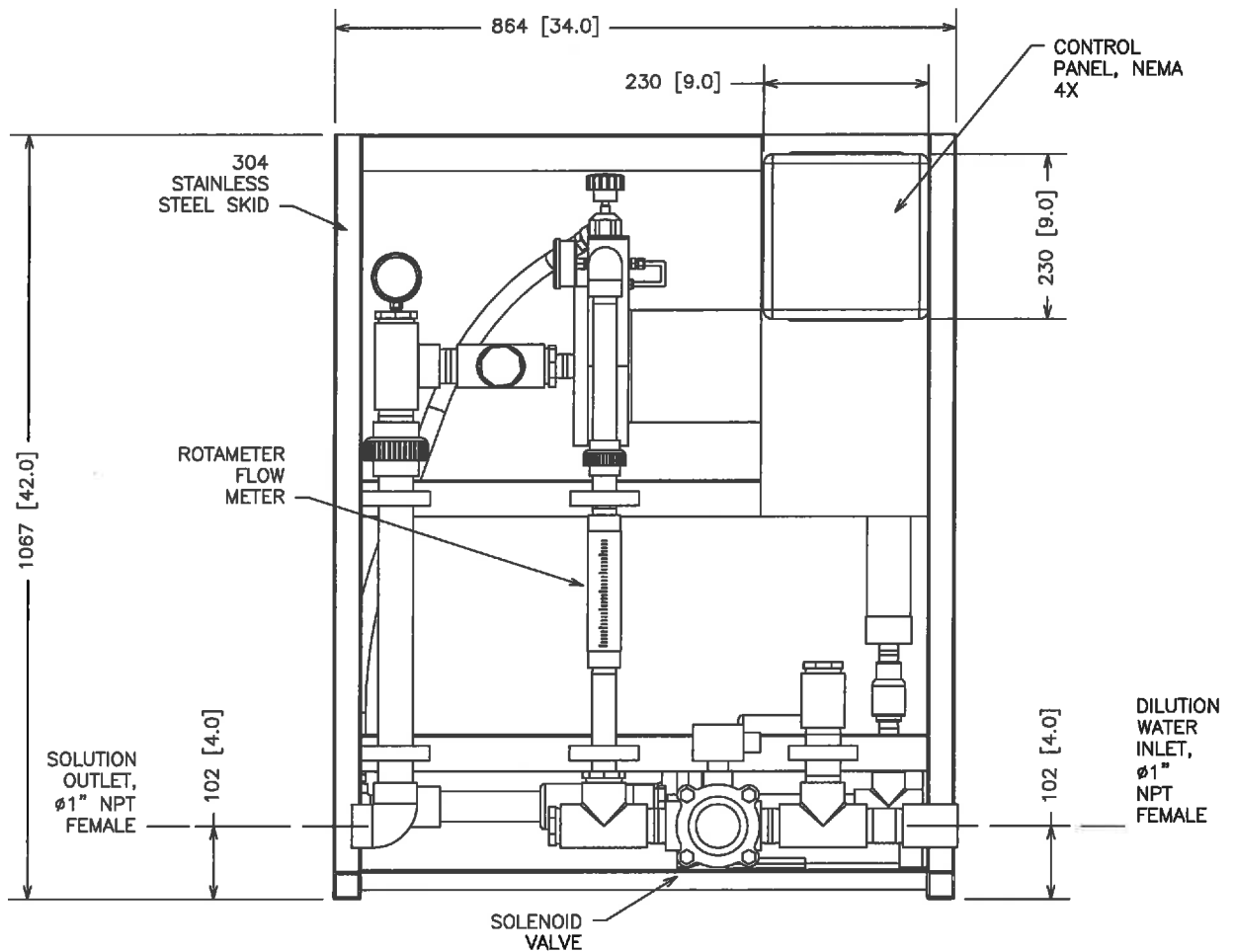
SOLUTION:

1. $\phi 1"$ FNPT OUTLET

$\phi 15$ [$\phi 0.6$]
THRU, 4 TYP.



PLAN



ELEVATION

DIMENSIONS: MM [INCHES]



VELODYNE POLYMER PUMP
VM-P-XXX-X GA DRAWING
FRONT ELEVATION & PLAN

JOB# PWT VM-P-XXX-X

DATE 23 MAR 2009

DRAWN PWTech Inc.

APPROV. ALEX DAVEY

SCALE

NTS

SHEET

1 OF 2

VELODYNE MODEL: VM-P-XXX-X

DILUTION WATER:

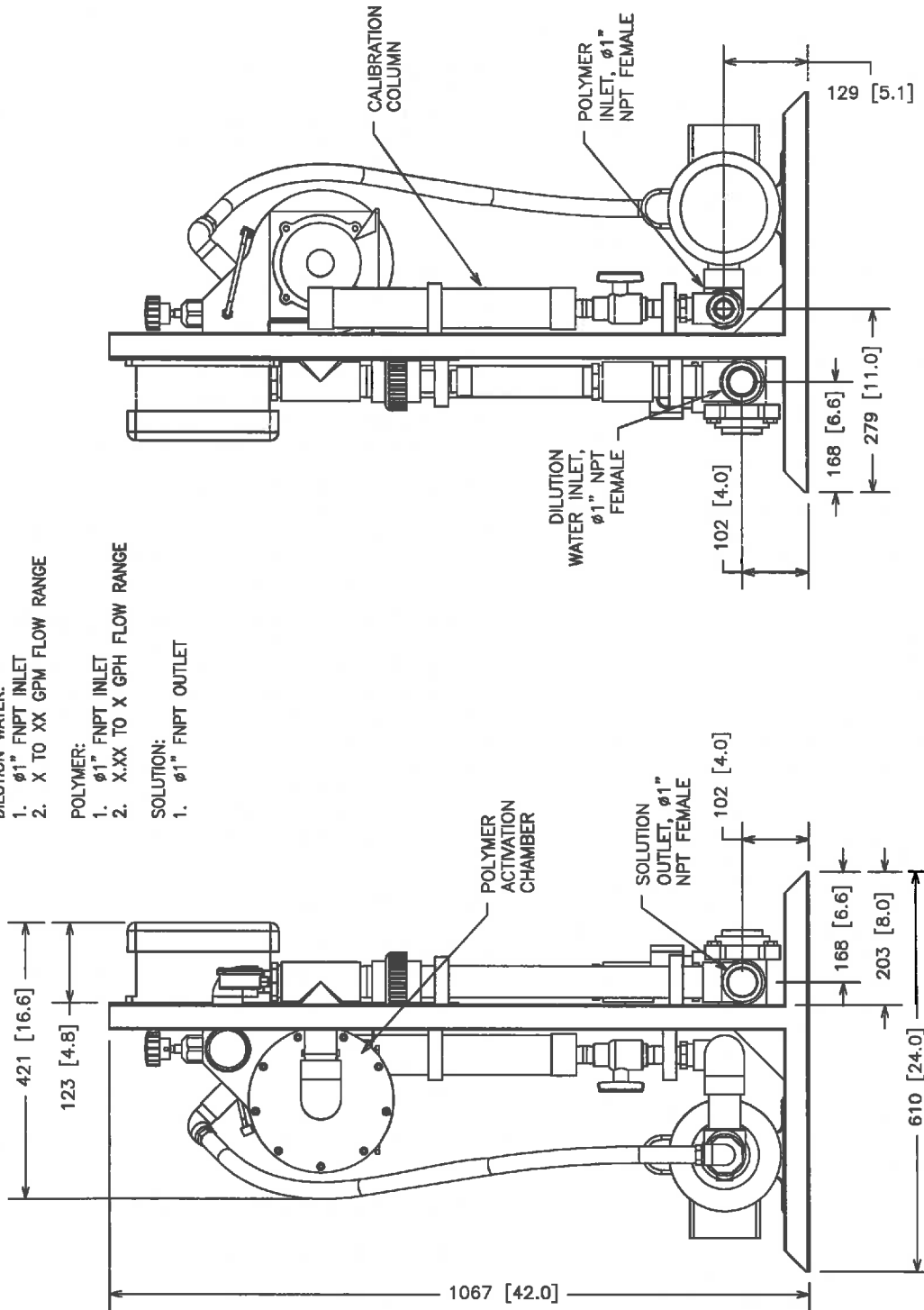
1. $\phi 1"$ FNPT INLET
2. X TO XX GPM FLOW RANGE

POLYMER:

1. $\phi 1"$ FNPT INLET
2. X.XX TO X GPH FLOW RANGE

SOLUTION:

1. $\phi 1"$ FNPT OUTLET



DIMENSIONS: MM [INCHES]



VELODYNE POLYMER PUMP VM-P-XXX-X GA DRAWING RIGHT & LEFT ELEVATION

JOB# PWT VM-P-XXX-X

DATE 23 MAR 2009

DRAWN PWTech Inc.

APPROV. ALEX DAVEY

SCALE

NTS

SHEET

2 OF 2

Process Wastewater Technologies, LLC Standard Terms and Conditions

These below terms and conditions shall exclusively govern the sale of all goods and related services by Process Wastewater Technologies, LLC ("PWT") to Buyer.

Item 1. ACCEPTANCE

Buyer may accept the preceding offer by noting acceptance in the space provided on the preceding offer sheet, if such space is provided, or by written purchase order. No oral acceptance shall be effective. This writing is intended by the parties as a final expression of their agreement and, in conjunction with the accompanying signed offer or purchase order and the PWT Standard Limited Warranty ("PWT Standard Limited Warranty"), is intended as a complete and exclusive statement of the terms of their agreement. Acceptance or acquiescence in a course of performance rendered under this agreement shall not be relevant to determine the meaning of this agreement even though the accepting or acquiescing party has knowledge of the nature of the performance and opportunity for objection. No agent, employee or representative of PWT has any authority to bind the Seller to any affirmation, representation or warranty concerning the equipment, components or related services sold under this agreement, and unless an affirmation, representation or warranty made by an agent, employee or representative is specifically included within this written agreement, it has not formed a part of the basis of this agreement and shall not in any way be enforceable.

Item 2. CANCELLATION

Upon acceptance of the preceding offer, Buyer shall have no right to cancel this agreement or any part thereof, except under the conditions specified in this provision or otherwise agreed to in writing by both parties. Any cancellation by Buyer of this agreement must be in writing and shall be deemed effective upon receipt by PWT. In the event of cancellation by Buyer prior to the commencement of production of the goods specified under this agreement, Buyer shall pay PWT a cancellation charge equal to all of the costs incurred by PWT under this agreement up to the time of cancellation, plus fifteen percent (15%) of the full order amount. In the event that production of the goods under this agreement has commenced prior to cancellation, Buyer shall pay a cancellation charge equal to all of the costs incurred by PWT under this agreement up to the time of cancellation, plus an amount equal to the greater of: the value of the goods already completed under the agreement; or fifteen percent (15%) of the full order amount.

Item 3. PRICES

Unless otherwise stated in this offering, prices are F.O.B. the PWT manufacturing facility. Charges for on-site technical assistance performed by a factory technical representative are not included unless indicated.

Item 4. VALIDITY

Unless otherwise specified, the preceding offer is valid for acceptance for (30) thirty days and is subject to review thereafter. Prices may be extended beyond thirty (30) days only if confirmed in writing by PWT.

Item 5. PAYMENT TERMS

Ninety percent (90%) of the purchase price under this agreement shall be invoiced net thirty (30) days upon shipping, or upon PWT's offer to ship. The remaining ten percent (10%) of the purchase price under this agreement to be invoiced net

thirty (30) days upon completion and/or performance of all related services under this agreement. Interest will be charged on the unpaid invoiced balance at the rate of one and a half percent (1½%) per month for any amount received after thirty (30) days from the date of invoice. Any collection costs and/or attorney fees incurred by PWT in order to collect payment due will be invoiced to the Buyer, and Buyer agrees to pay said costs.

Item 6. FEES AND TAXES

Buyer shall pay directly or reimburse PWT for payment of any and all applicable customs, sales, use, excise or other fees and taxes associated with the production and delivery of goods under this agreement. Buyer is responsible for and bears the risk of establishing, if applicable, a valid exemption from any tax, and shall indemnify, defend and hold PWT harmless for any loss, cost or expense relating to any such exemption.

Item 7. DELAYED SHIPPING

If Buyer specifies a shipping date more than one (1) year from the date of acceptance of the preceding offer, the price stated in the preceding offer for the same goods shall be increased by a figure of six percent (6%).

Item 8. FINANCIAL RESPONSIBILITY OF BUYER

If at any time before shipment, Buyer's financial ability to pay becomes impaired or unsatisfactory, PWT shall have the right to require Buyer to make payment in full before shipment. In addition, if at any time before shipment, any proceeding is brought by or against Buyer under the bankruptcy or insolvency laws, PWT shall have the right to cancel this contract and Buyer shall pay PWT a cancellation charge equal to all of the costs incurred by PWT up to the time of termination, plus fifteen percent (15%) of the purchase order amount.

Item 9. SHIPPING

Unless otherwise specified, all equipment and components will be shipped in one lot by the lowest cost method at the discretion of PWT. Any additional shipping requests by Buyer may be subject to additional shipping and handling charges. All shipments shall be F.O.B. the PWT manufacturing facility in Cincinnati, Ohio. Delivery to the carrier shall constitute delivery to Buyer for purpose of transfer of risk of loss or damage in transit, and any delivery deadlines specified in this agreement. Buyer is responsible for obtaining any desired cargo insurance and shall pursue any loss or damage claims solely with the carrier.

Item 10. DELIVERY SCHEDULE

Unless otherwise specified, delivery dates under this agreement are approximate, and failure to meet an exact delivery date shall not constitute a breach of this agreement unless delivery is not effected within a reasonable time after the specified delivery date.

Item 11. INSPECTION

Inspection by Buyer or Buyer's representative of the goods specified under this agreement will be permitted prior to shipment at the PWT manufacturing facility in Cincinnati, Ohio, at a time mutually agreeable to both parties. Inspection will be



allowed only inasmuch as such inspection does not unreasonably interfere with PWT's production work flow. Complete details of any requested inspection must be submitted to PWT in writing, at least two weeks in advance of the requested inspection date. Any inspection under this provision must be completed prior to shipment of any goods under this agreement.

Item 12. OFFER BASIS

This agreement is exclusively based upon drawings and specifications in the possession of PWT at the time of this agreement. PWT expressly reserves the right to modify the price and other terms of this agreement as reasonable, should additional drawings, documents, or other addenda be required to produce or deliver the goods and/or services provided under this agreement.

Item 13. LIMITED WARRANTY

PWT's warranty liability under this agreement is limited to the terms listed in the PWT Standard Limited Warranty that accompanies these Terms and Conditions, and is incorporated herein by reference. No other warranty, express or implied, is made with respect to the goods and/or services provided under this agreement.

Item 14. MEET AND CONFER

The parties shall amicably work together to negotiate and resolve any controversy or dispute arising out of, or in connection with this agreement or its interpretation, performance or nonperformance or breach thereof. In particular, in the event of a disagreement, the parties shall meet and confer and attempt in good faith to resolve their differences. At the request of the aggrieved party, a face-to-face meeting between decision-makers of the parties shall be arranged at the offices of the non-aggrieved party. Such a meeting shall occur within fourteen days of the delivery of the written request of the aggrieved party, unless otherwise agreed by the parties.

Item 15. ARBITRATION

If, after meeting and conferring as provided under this agreement, the parties are unable to resolve their differences, any disputes shall be settled by binding arbitration in accordance with the following procedures:

- (a) The Arbitration shall be conducted in accordance with the Commercial Arbitration Rules of the American Arbitration Association ("AAA") in effect at the time of the arbitration, except as may be modified herein or by mutual agreement of the parties. The location of the arbitration shall be Cary, North Carolina.
- (b) The arbitration shall be conducted by one arbitrator jointly selected by the parties. If the parties are unable to agree upon an arbitrator after thirty (30) days, the arbitrator shall be selected under AAA rules.
- (c) The award shall be in writing and shall state the reasons for the award and shall be final and binding on the parties. The award may also include an award of costs, including reasonable attorneys' fees and disbursements. Judgment upon the award may be entered by any court having competent jurisdiction over the parties or their assets.

Item 16. GOVERNING LAW

All disputes and matters arising under, in connection with, or incidental to this contract shall be litigated, if at all, in and before the Superior Court of the State of North Carolina, located in Wake County, State of North Carolina, USA to the exclusion of other courts of other states, the United States or other countries and to the exclusion of other venues. The parties expressly consent to the exclusive jurisdiction of this court and agree that this venue is convenient and not to seek a change of venue or to dismiss this action on the grounds of *forum non conveniens*, and not to remove any litigation from that court to a federal court. This Agreement shall be construed in accordance with and governed by the substantive laws of the State of North Carolina, to the extent state law applies. An action for breach of this agreement must be commenced within two (2) years after the cause of action has accrued.

Item 17. WAIVER AND MODIFICATION

No waiver by either party of any breach, default or violation of any term, warranty, representation, agreement, covenant, condition or provision of this agreement shall constitute a waiver of any subsequent breach, default, or violation of the same or other term, warranty, representation, agreement, covenant, condition or provision. No modification, amendment, extension, renewal, rescission, termination or waiver of any of the provisions contained in this agreement, or any future representation, promise or condition in connection with the subject matter of this agreement, shall be binding upon either party unless in writing and signed by both parties.

Item 18. SEVERABILITY

Any provision of this agreement which is invalid, prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective solely to the extent of such invalidity, prohibition or unenforceability without invalidating the remaining provisions hereof, and any such invalidity, prohibition or unenforceability in any such jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

Item 19. ASSIGNMENT AND DELEGATION

Neither party to this agreement shall have the right to assign or delegate its interest in or obligations under this Agreement without the prior written consent of the other party, which shall not be unreasonably withheld. The merger, acquisition, reorganization or other restructuring of PWT shall not constitute an assignment under the terms of this agreement provided the surviving entity has assumed all of the obligations of PWT under this agreement. The transfer of any rights under this agreement from PWT to any entity controlled by or affiliated with PWT shall not constitute an assignment under the terms of this agreement provided PWT retains all of its obligations under this agreement. The rights and obligations of the parties to this Agreement shall be binding upon, and enforceable by their respective heirs, successors and permitted assigns.



PWT LLC Standard Limited Warranty

Item 1. LIMITATION OF LIABILITY

The only warranty which Process Wastewater Technologies, LLC ("PWT") makes is that warranty which is set forth in the preceding agreement and which is further detailed below:

THE GOODS SPECIFIED UNDER AGREEMENT WITH PWT ARE PROVIDED "AS IS" AND PWT DOES NOT MAKE ANY OTHER EXPRESS WARRANTIES OR ANY IMPLIED WARRANTIES WITH RESPECT TO THESE GOODS AND/OR RELATED SERVICES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR USE.

In addition, PWT does not assume and expressly disclaims any liability for (i) any SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES which anyone may suffer as a result of the sale, delivery, service, use, or loss of use, of any goods and/or services provided by PWT, or (ii) any charges or expenses of any nature which are incurred without the express written consent of PWT. In particular, PWT does not warrant that any goods provided are free from any claim of any third person by way of infringement or the like, and PWT expressly disclaims any liability for any claim of infringement or the like that may result from the sale, delivery, service, use, or loss of use of any goods and/or services provided by PWT.

PWT's obligation under this warranty is expressly limited to the repair or replacement of any part or parts that are proved to the satisfaction of PWT to have failed prematurely or because of a fault in workmanship or materials.

PWT's total liability under this warranty or in connection with any claim involving any goods or services is expressly limited to the purchase price of the goods and/or services in respect of which damages are claimed.

Item 2. DEFECTS WARRANTY

PWT warrants that the goods manufactured by PWT shall be free from defects in material and workmanship for the shorter period of: (i) eighteen (18) months from the date of purchase order; or (ii) twelve (12) months from the delivery of the specified goods.

PWT's liability under this warranty or in connection with any other claim relating to goods manufactured and delivered by PWT is limited to the repair, or at our option, the replacement or refund of the purchase price, of any products or parts or components which are returned to PWT freight prepaid, and which PWT determines, in its discretion, are defective in material and workmanship. Products or parts or components thereof which are repaired or replaced by PWT will be returned to the buyer freight collect.

Item 3. PRODUCTS OF OTHER MANUFACTURERS

PWT makes no warranty with regard to any products not manufactured by PWT, including but not limited to electrical components or equipment and other prime movers.

Item 4. TYPES OF DAMAGES AND CLAIMS FOR WHICH PWT INC. IS NOT RESPONSIBLE

The following non-exclusive list of items are specifically not covered by the PWT Standard Limited Warranty and, in the event of their occurrence, will render the PWT Defects Warranty null and void:

- defects which are caused by improper installation, improper or abnormal use or operation, or improper storage or handling;
- defects caused by the failure of the buyer or user to perform and log normal preventative maintenance;
- defects caused by the use of replacement parts not approved in writing by PWT;
- defects caused by repairs by persons not authorized in writing by PWT;
- defects caused by modifications or alterations made by the buyer or user;
- any damage to our any product occurring while it is in the possession of the buyer or user.

Item 5. EQUIPMENT SAFETY PARAMETERS:

With respect to operation of the equipment, it is the responsibility of the buyer to define and provide any safety device(s) or associated safety device(s) (other than that which is ordinarily furnished by PWT) which may be necessary and/or required, and to establish safety procedures and operational instructions to safeguard the operator(s) during maintenance, cleaning, or any use of the equipment whatsoever, and to subsequently ensure that the equipment is operated in conformance with all applicable safety procedures, laws, regulations and instructions.

It is also the responsibility of the buyer to enforce all safety regulations and operational instructions and to maintain the equipment in a safe condition (e.g., guards in place; warning, caution and/or important labels affixed; electrical boxes secure; interlocks operational; etc.). In particular, all warning, caution and/or important labels must be maintained in a readable condition, and if necessary, replaced with new labels.

Additionally, as the nature of the equipment does not always make it possible to fully prevent operator access from rotating components, maintenance or cleaning of any nature must not be performed on the equipment without first disconnecting all power.

Item 6. OPERATOR SAFETY COMPLIANCE:

Buyer warrants and agrees that because it has sole control over the equipment, it shall be solely responsible for safety compliance. Operator access and use of equipment, and full compliance with all provisions of the Operator Safety section of PWT Instruction Manuals are essential and the user's responsibility; the provisions of that section being expressly incorporated herein.

